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# of Success

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A PLEA FOR RATIONAL EDUCATION

BY

STANLEY DE BRATH, M. INST. C.E.

LONDON:
GEORGE PHILIP & SON, 32 FLEET STREET.
LIVERPOOL: PHILIP, SON & NEPHEW, 45-51 SOUTH CASTLE STREET.
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PREFACE

IT has been my aim in this little book to present natural laws, which have been slowly worked out by the labour of many minds. A successful nation is made up of successful units, and I have had primarily in view the parents who, having to think first of their children's success in life, are dissatisfied with the existing state of things; under which, after an education costing at least a thousand pounds, large numbers, perhaps a majority, of boys leave school knowing nothing but a very moderate amount of Latin and Greek, quite insufficient to give them an interest in classical literature, and the rudiments of half-a-dozen other " subjects," in none of which they take any real interest or can stand any test. Many parents also desire for their children more practical and manual training, more development of the social and artistic side of human nature, and a better acquaintance with the treasures of our English tongue, as well as greater care to avoid the moral disasters which are, alas! not of rare occurrence. To these I have tried to indicate a way of realizing their desires.

LAWRIE PARK ROAD,
SYDENHAM,
October, 1896.

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THE FOUNDATIONS OF SUCCESS

A PLEA FOR RATIONAL EDUCATION

INTRODUCTION

> "For, leaving out only some very small classes, what are all men employed on? They are employed in the production, preparation, and distribution of commodities. And on what does efficiency in the production, preparation, and distribution of commodities depend? It depends on an adequate acquaintance with their physical, chemical, and vital properties, as the case may be. This order of knowledge, which is in great part ignored in our school courses, is the order of knowledge underlying the right performance of those processes by which civilized life is made possible."—Herbert Spencer, *Education*, p. 16.

1. Two remarkable books on Germany* have been published this year, books which are mutually explanatory. The former claims to give the intrigues which ultimated in the conquest of the Duchies in 1852, the supplanting of Austria in the German hegemony in 1866, the war with France in 1870, the proclamation of the empire in the following year, and the formation of the Triple Alliance. The tale is a

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* *Studies in Diplomacy*, by Count Benedetti, Ambassador at the Court of Berlin in 1870. Translated from the French. Heinemann, 1896.

Made in Germany. E. E. Williams. Heinemann, 1896.

surprising one, and if the very categorical documentary and other evidence brought forward should be verified, it must result in nothing less than the reversal of the chief responsibility for the greatest war of modern times, and the era of armed peace which has succeeded it. Be that as it may, it is undeniable that the vast military power of the new German Empire could never have been fed by an agricultural state, and Prussian statesmen, after the war, therefore found themselves in presence of imperative need for the creation of an industrial one. How they have succeeded is told in the second of the two books spoken of, and it is there shown conclusively that this success has been largely at the expense of England. The two taken together show how far-sighted is the policy and how relentless the opposition which England will be called upon to meet, when awaked from the dream of complacent optimism that the present revival of trade is the beginning of a time of prosperity, coming, like the sunshine, from causes beyond our control.

Whether the interpretation of German policy given by the French diplomatist be exact or no, it is undeniable that this policy has, through very various alternations of attitude towards the other Powers, brought about the continuous aggrandisement of Prussia; and it is now unfortunately a commonplace, that the armed peace which now reigns under the keeping of the Triple Alliance is a state of bitter industrial war, in which the capture of markets has replaced the conquest of territory, and in which every weapon that human ingenuity can devise is used for the purpose. Some of these devices are explained, one may also say exposed, by Mr. Williams, who gives an array of facts and figures from German and English commercial returns in most instructive detail, fully borne out by the general statistics of the Customs presented annually to Parliament. He shows that in bad times German trade has remained almost stationary while ours has gone back heavily, and that her iron, shipping, hardware, cutlery, textiles, machinery, chemicals, and printing have flooded markets once peculiarly our own. That there are still some persons who preserve an attitude of *laissez faire* is probably due to the insufficient treatment which the real history of nations, and more especially of our own country, generally receives, and the consequent promotion of the secondary causes of our prosperity to the place of primary ones. An understanding of the real causes of the development of English trade is so vital to the matter in hand, that I trust to be pardoned for a historical digression, for it is only by recalling the stages of its growth that its causes can be presented, or its future course be foreseen.

2. Modern commerce begins with the Hanseatic League. About the middle of the thirteenth century a compact of mutual protection was formed by eighty German towns, of which the four chief were Lübeck, Cologne, Brunswick, and Dantzig. These had four principal trading depôts, Bruges, Bergen, Novgorod, and, smallest of all, London; from each of which a colony of resident merchants drew raw material, and to which they sent their own products and those of the Mediterranean and Eastern trade, which was in the hands of the Italian commercial republics of Genoa, Amalfi, and Venice. At this time England's chief export was wool, which was worked up in Flemish looms and re-imported as cloth. England, in fact, then occupied a position similar to that out of which the United States are now growing with regard to cotton, that of a rising nation exporting raw material and importing the manufactured product. It was Edward III. who originated the idea of developing an indigenous textile industry. Unhampered by the fine-drawn scruples of a later age, he first invited colonies of Flemings from over seas, settled them in districts sufficiently remote to discourage a change of mind, and then protected his new industry, not by the complicated machinery of a

tariff and Customs officers, but by declaring the export of wool a capital offence, as may be read at large in the 11th Statute of his reign. But the conditions were unfavourable, the Act soon fell into desuetude, and the industry remained small.

During the next century it would doubtless have seemed as absurd to the merchant princes of the great German confederacy, as the contrary proposition now does to some sanguine men among ourselves, had they been told that their glories were destined to pass to the rough islanders whose ships were all but unknown in the Mediterranean, and whose manufactures did not suffice to clothe their own commonalty; but by the sixteenth century this event was already casting its shadow forward. The discovery of America, and the Reformation, which are the opening scenes of the drama of modern history, had brought forward Spain and Portugal as rivals to the Genoese, and had fired the English imagination by indicating a field for adventure, profit, and successful war which exactly suited the Anglo-Saxon genius.

The robust and somewhat materialist tendency of Northern thought, together with the claims on the purse of the faithful by a Roman Curia then at its lowest point of Christian morality, had bred throughout Northern Europe a disposition to resistance, which was manifest both in civil and religious life. In England the statutes of *Mortmain* and *Præmunire*, restricting the power of heritage by religious bodies, and limiting Papal nominations to ecclesiastical preferment and Papal decisions in ecclesiastical cases, no less than the translations of the Scriptures from time to time effected by Wycliffe and others, testify to this feeling; and, long before any dogma of the Catholic Church was seriously called in question, the nation had taken up an attitude of hostility towards Rome. With dogmatic blindness, the flatness of the earth had been associated with the orthodox interpretation of Scripture up to the very eve of the return of Magellan's ship from her famous voyage of circumnavigation, and the irresponsible voice of the clergy, who had habitually and unanimously denounced the new truth as heretical, was confounded with the authoritative dicta of the Church. The defeat was crushing. It synchronized with Luther's questioning of the dispensing power of the Pope, and the seed fell into soil ready for it. The nations of the North threw themselves heart and soul into the new movement, and when the Pope assigned all regions east and west of the line of no magnetic variation to Spain and Portugal respectively, England stepped in to dispute the territorial decision, not as the dogmatic one with words and theses, but with sharp shot and cold steel. She claimed the freedom of the seas for all, and enforced a policy which gratified at once her interest, her valour, and her religious prejudice, as well as a certain instinct that, however the balance of casuistry might stand, the Protestant cause was then the cause of freedom. These were the conditions that preceded the great development of English trade.

3. It is not till the seventeenth century, however, that the commerce of England begins to show the magnitude it was destined to reach. After the naval victory over the Armada, when desire for plunder and "religious" hatred had between them established the proverb that between England and Spain there was "no truce across the Line," when a hundred years of constant exploration and intermittent war had trained up the true breed of British sea-dogs—three great events came about which were England's opportunity to gain the commerce of the world. The first was the revolt of the Netherlands, and its pitiless repression by the Duke of Alva. The Low Countries were at this time the great manufacturing centre of Europe. The full fury of the war fell on the populous Flemish towns, thousands of their men fell on the field, their goods were plundered and their livelihood destroyed. The manufactures of the Low Countries

were killed, and hundreds of Flemings took refuge in England, where they were alike welcomed for their skill, commiserated for their sufferings, and sympathised with for their undying hatred of England's greatest enemy—the Spanish King.

The next great political event which paved the way for English trade was the culmination, in 1619, of the hatred between Catholic and Protestant in the terrible struggle known as the Thirty Years' War. Armies in those days lived as a matter of course on the lands they marched through, and it was the object of Tilly and the Imperialist leaders at once to recruit themselves and to cripple the enemy by seizing the centres of trade and industry. Any revival of prosperity in any part of Germany was the signal for the march thither of rapacious foes, or scarcely less rapacious friends; the whole fabric of German commerce came to the ground, and England was left with France as her only manufacturing rival, and with Holland as her only competitor for the carrying trade; for Spain, however formidable as a military power and as possessor of the El Dorado in the Indies, was commercially of small account.

But France also was to be taken out of the way. Louis the XIVth had declared war against civil liberty in his attack upon Holland; he now set himself to destroy religious freedom in his own dominions. He revoked the edict which had extended religious toleration to the Huguenots; and the pick of French weavers and artizans came to England, bringing with them three millions sterling in money, and skill quite inestimable.

It is unnecessary to trace the wars with Holland, except to recall the severely protectionist measure which supplanted her. When Cromwell desired to follow up his naval victories by transferring the Dutch carrying-trade to England, it was enacted, in 1651, that no merchandise, except such as should be imported direct from its place of manufacture in Europe, should be admitted into any port of the United

Kingdom or its colonies except in English-built ships, owned and commanded by Englishmen, and manned by a crew who must be at least three-fourths English. These Acts continued in force till 1825; and even much later than this the same principle was extended to the mercantile steam navy, when heavy postal subsidies enabled lines of steamers to be built and successfully run to ports whose commerce was as yet insufficient to pay for the enterprise, an example which Germany knows enough history to follow actively at the present moment.

But a more important factor still in England's commercial prosperity remains to be glanced at. It had long been known that in the north of England and in Wales lay extensive deposits of iron and of coal. These had been scarcely opened till the middle of the eighteenth century; but in 1732 and 1736, within four years of each other, were born two men who were destined, by revealing to what uses that iron and that vast store of primeval energy could be put, to revolutionize the world and to leave a more durable impress and a more glorious record than that of its conquerors and kings. Their names were Arkwright and Watt. The one invented the multiple spinning frame for cotton and woollen goods, the other applied steam as a motive power. Some idea of the industrial revolution brought about by the inventions of Arkwright and Watt, and of the power of the enormous engine which they placed in England's hands for crushing out all competition in the struggle for commercial supremacy, may be arrived at by a statement made by Edward Baines in his *History of the Cotton Manufactures*, published in 1835, that the 150,000 workmen in the spinning mills produced as much yarn as 40 millions—more than the whole population of the United Kingdom—could with the one-thread wheels! A spinner produced in one day as much as he formerly produced in a year. Under this flood of products, as excellent as they were cheap, the feeble beginnings of fresh foreign competition were submerged and drowned. Before the foreigner could copy the British looms he was hopelessly undersold; and at the very time that the textile industries of England were being brought to perfection, the French Revolution convulsed Europe with wars which alone would have sufficed to paralyse its trade. So entirely did British products command the markets, that, at the very time when Napoleon laid his embargo on English manufactures, he himself had to wink at the invasion of the Continental System he had devised, and his troops "marched to Eylau clad in overcoats from Bradford and shod in boots made at Northampton." *

4. The unexampled commercial success was then visibly due to three chief factors—to unexampled political opportunity, to the tapping of a reservoir of stored-up power, and to mechanical skill to use it; briefly, to understanding on the one part (and ignorance on the other) how to direct energy, natural and human. It will be seen by those who study the subject that these, and no others, are the mainsprings of present German success; natural laws do not discriminate. In the light of these facts, it is difficult to understand the fatuous insularity which inspires some utterances as to the causes of English commercial prosperity. Our boys are taught that the commerce of England is due to favourable climate, to the existence of coal and iron, to "natural facilities for establishing means of communication" (as if no other lands had railroads or canals!); to the nearness of the coast on both sides, to the abundance of seaports, and, climax of absurdity!—to "a central position among the nations which carry on a great commerce at the present day"; as if constant causes could produce variable results, and the history of commerce had no changes to record. The 84th edition of a school-geography widely used tells us, in 1893, that agriculture is in a flourishing

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* Green: *History of the English People.*

condition; and, after a pæan of exultation on the magnitude of every British manufacture that can be named, closes its antiquated summary by remarking that the internal communication is superior to that of any other country, and that "the turnpike roads, whose united length is 24,000 miles, are for the most part level and in good condition; owing to which, and the excellence of our horses, travelling is quicker and easier in England than elsewhere. . . . . But railways are now fast superseding common roads."

Is it patriotic, is it common sense, to feed growing minds with transparent fallacies like these? Is it wise to instil beliefs that British supremacy in trade is part of the constitution of the universe: beliefs which, growing with our children's growth, are well nigh ineradicable in later life? and this at a time when the British Iron Trade Association delegates, after examining the Belgian and German ironworks, report—"It would be absolutely impossible to produce such (iron) sheets . . . with the appliances at our disposal." "As a practical man I have never seen anything like it." . . . . "We shall have to begin and learn again." They report, too, that the average wage is such as to give the German workman greater comforts in living. Are the possibilities of Nature exhausted? Is not rather the fact that all the forms of energy—heat, light, electricity, magnetism and motion—are interconvertible, a promise of vast possibilities to him who shall learn how to transform them without needless waste? Is the huge waste involved in our present mechanical processes (all of which turn on the transformation of energy) a fact to make us content to rest on our oars while these realities are studied and applied by other nations? Why is the very name of Energy and its laws strange to our ears, if not simply because, passing them by, we make that recondite which should be familiar?

The mischief done in this way is incalculable. Other nations have climates as good as ours, and even if not, to maintain a standard humidity in a cotton mill is not beyond the resources of science. Coal is raised in America at 6s. 3d. a ton, and the German iron and steel output last year was 5¾ million tons. That of America was 13 million tons in 1890 against England's 10 million tons, and has risen since. Commerce estimates distances not by miles, but by time, freights, and prices; many reasons determine trade routes, and Liège, Westphalia, Antwerp, and Hamburg are as near the centre of population as London, and by cheap railway freight may be nearer. Commercial highways have changed and may change again.

5. This is not the place to enlarge on the interwoven causes which make for commercial success, but there is one which is universally admitted as such—Education. The labours of the late Royal Commission have made it abundantly clear that our two great rivals in trade are precisely the two nations that have revised their educational system, and that they have revised it in accordance with the fact that the wealth of a manufacturing State lies in the number of producers actively engaged, in their individual skill, and in the intelligence with which they are directed. America openly states that her conscious aim is to secure "directive skill." Germany prepares officers for her industrial battalions as well trained as those of her regiments. "The attention paid by the German State to education—and particularly to scientific and technical education—is matter of common knowledge the world over, though the knowledge has not yet effectually dislodged the notion that the Germans are a people devoted to dreary philosophy or plodding research into remote by-paths of knowledge. There are dry-as-dust enthusiasts everywhere, and Germany has her share of them; but the scientific training of the mass of her people is not dry-as-dust at all. It is severely practical. The Technical Education to be obtained in Germany is thorough, and

thoroughly scientific; but it is meant for application. Active use, rather than abstract mental improvement, is the main object kept in view; so it produces . . artisans and engineers of the best class,—men who know the why and wherefore of their work, and therefore do it well."

"In the promotion of the education of its sons the Fatherland spares neither pains nor expense. First-rate Technical Colleges are normal adjuncts to the municipalities of German towns, and their work is supplemented by voluntary associations. It is no exaggeration to say that there is not a subject germane to industrial, scientific, or commercial training which is not taught, and taught well, in numbers of schools up and down the German Empire. This training is laid on a sound foundation. German elementary education, up to the age of fourteen years, is compulsory and free; and secondary education, which is largely aided by the State, the municipality, and endowments, is practically free also. From the elementary school the German scholar passes into the Gymnasium, which leads to the University or into the science schools, which lead to the Polytechnic, an institution under Government control. A glowing account of these polytechnic and other science and art schools was brought home by deputations from the Manchester Corporation and the Manchester Technical School, which visited the Continent in 1891. According to their reports the buildings 'are, in simple truth, palatial.' They describe some of them in detail. I shall borrow by way of illustration a reference to the Charlottenburg Polytechnic, which numbers on its teaching staff eighty-six professors, lecturers, and assistants, and thirty private tutors; and is most admirably equipped with scientific instruments and every appliance for the prosecution of advanced studies in architecture, structural and mechanical engineering, shipbuilding, chemistry, metallurgy, and general science. There is a mechanical workshop in connection, and a library of 52,000 volumes; the chemical laboratories are lavishly fitted;

the buildings, which were erected at a cost of £405,000, are all sumptuously appointed, and expense is practically disregarded. This, remember, in a country which, according to some of our wiseacres, will never seriously compete with England, because she lacks the capital!"*

Mr. Williams writes further, "I wish to bring home to my readers the splendid system of industrial education which obtains in Germany, a system which is an integral factor in Germany's industrial success, and which, compared to anything in the nature of technical education to be found in England, is as an electric lamp to a rushlight."

6. These are the schools for the officers of industrialism, and these are more imperatively needed by England than the technical schools we are now tardily endowing. Wise direction of industrialism is of the essence of the matter. Is it needful to insist that all skill comes first of taking thought? or that directive skill is even more useful than manual skill? It is not the workman's place to revise patterns, to discover the needs of foreign customers, to determine lines of enterprise, to alter standard designs, to criticise and improve the products of the factory and machine shop, to decide on the practical economies of material and power which determine real as against apparent cheapness; his function ends with carrying out his orders skilfully. Thus it is that technical schools in which workmen are trained are but a very partial answer to the growing need. Workers, like fighters, require leading, and at the present time it is undeniable that our boys who will be called upon to lead are not taught how to do so: indeed they are trained to think nothing of the kind is required. There are of course many persons, especially many schoolmasters, who deny that any training is needed. When it was proposed to arm our infantry with the Minié rifle in place of the old smooth-bore Brown Bess, impassioned orators in the

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* *Made in Germany*, p. 152.

House of Commons resented 'the insult to the memory of Wellington and the heroes of the Peninsular campaign,' and descanted on the glories of 'the thin red line with the musket and bayonet.' This kind of reverence for the men who used the very best instruments that their day could produce is a form of stupidity not yet extinct. But it is happily much less common than it was, and few will deny that more directive ability is now required if we are to maintain our national place, nor that this directive ability comes by the understanding of those natural laws which serve those who know them and crush those who do not. Every successful enterprise, every paying invention, every improved design, is such by conformity to some definite law; every unworkable invention, every unsound undertaking, defies some such law. To understand these laws is to command success.

The Public Schools, and the whole mass of secondary teachers who follow in their wake, make scarcely any attempt to meet this growing demand. The "modern side" merely changes the items of instruction, without changing its method; and the average boy who passes through it comes out at the end with an even less effective knowledge of French and German than his "classical" school-fellow has of Latin and Greek: both are the results of a gerund-grinding mill which destroys interest, not of a live system of instruction which kindles it. The English Public School, its athletics, its corporate spirit, its manly independence, its freedom and general breezy healthfulness, is an English product of which we are rightly proud. Its system of instruction is not; there is no patriotic reason for cherishing it as specially adapted to Englishmen. This latter is, in fact, an importation from the continent, where it grew up at the time of the Renaissance, when grammar—classical grammar—was made the root of all learning. Grammar schools, an immense advance on the rude tuition of previous days, sprang up all over Europe; and almost all subsequent instruction has been cast in the mould then made. Its first aim has been to instil that knowledge of literary form which depends on rules of syntax and prosody, and hence it has come to pass that any person who knows the Eton grammar has been, and still is, considered fit to teach. Teaching, that is, is not recognized either as a science, which has natural laws, or as an art, which needs to be learned.

That this is true is a notorious fact. At the late Conference on Secondary Education held at Cambridge under the Vice-Chancellor of the University, it was stated that the teachers in our schools at the beginning of their careers were divided into "curables," who learn their trade at the expense of several generations of pupils, and into "incurables," to whom many generations of pupils are sacrificed in vain. The speaker went on to comment on the fact, apparently well known in scholastic circles, that there is no public school which has not one or more known incompetents upon its staff, incompetent even where all are untrained. It goes without saying that these are generally put to teach the youngest boys, and thus to encourage at the outset a distaste for their work, and to lay a broad foundation of bad mental habits. Another speaker stated that the public school-boys are the "vile bodies" for the callow novice in the teaching art, who, be it remembered, has gone from a school to the larger school of the University, and returns again to a school as teacher, without any experience of the world or of the needs of those whose lot is cast in it; with purely literary ideals, and without any training to give him the fruit of experience which he himself must necessarily lack. Nor is testimony to the same effect wanting from the more enlightened among public schoolmasters themselves. The Rev. the Hon. E. Lyttelton, head-master of Haileybury, from whom I shall have occasion to quote more than once, says (*Mothers and Sons*, p. 137):—

> "The market is full, not of men who have carefully prepared themselves for a great and noble undertaking—such, indeed, hardly exist anywhere in England—but of excellent athletes and competent scholars pressing the claim of their attainments—especially the athletics—upon the attention of head-masters and governing bodies of schools. You may ask why the market is full, when the work is known to be not only very important, but exceedingly difficult, and in many cases ill paid. The answer is a melancholy one. There is nothing to prevent large numbers of easy-going lads, who have fought shy of other professions because a preliminary training was in each case necessary, from drifting at the last minute into either "tutoring" or "the Church," since in one case no training is required, and in the other quite the minimum. No sensible man would ask an untrained architect to build his house, or an untrained farmer to manage his land. Nor would he dream of committing his son's body to an untrained doctor; but he is perfectly willing that the boy's mind should be handed over to a youth totally ignorant how to teach."

7. The method of the school and the method of the "crammer" is essentially the same—each appeals to the memory to retain extraneous "knowledge" less or more skilfully imparted; the schools do it slowly and the crammer does it fast, but both aim at storing the mind. As knowledge slowly acquired, *cæteris paribus*, sticks in the memory rather better than that rapidly got up for a special occasion, we are apt to think that the difference between sound and unsound methods of instruction turns on time. But is this so? Is it not rather the case that to do thinking *for* a mind and to give it the results is cramming, while to train it to do the thinking itself is instruction—building up—of that mind? Cramming, in short, is teaching what to think, instruction is teaching how to think. And if the steps of sound thought have been discovered to be (1) observation of the particular facts in hand; (2) the perception of their relation to one another and to other facts; (3) the association of those relations into definite classes; and (4) accurate statement and practical application; then surely sound teaching is that which habituates the mind to going through this process well.

A distinguished living statesman has told us that, at the present time, we specially need to develop the art of thinking. This art, he said, stands a very good chance of perishing from among us altogether. One reason for this is not far to seek: such a mass of able thought is poured out by the press before minds quite untrained in analysis and inference, that men tend to become mere reflects of the papers and periodicals they subscribe to. We need, in fact, the ability to use our superabundant material as material, and not as manufactured product. We need the insight which perceives the real premises on which gracefully-worded assertions rest, which knows when metaphors are arguments and when mere rhetoric or sophistry because it understands the laws of things. It follows, then, that this art of right thinking is not to be gained by the substitution of one kind of curriculum for another. How it is developed it is a chief part of the following pages to show; and here it may be noted that this is the idea underlying the writings of every educational reformer since Ascham lamented the number of "good brains spoiled by bad schoolmasters." Carlyle, Ruskin, Arnold, and Herbert Spencer are in the same tale with Locke, Pestalozzi, Froebel, and Herbart; they differ in detail, but agree in principle. It is only when the writings of any one of these are applied as a final formula that opposition can be made between them; as discoverers of the laws of the human mind they are mutually supplementary. They all agree that only that knowledge becomes part and parcel of the human mind which has been led up to by natural steps, ascended by the mind's own effort. They all seek that minds shall be helped to understand, rather than made to learn; that instruction should be vitalised, and methods of tuition be modelled upon the laws of mind.

The nationality of the man who discovers these laws is of no consequence; be he German, Frenchman, American, or Englishman, so far as his discoveries are true they must be adopted by others, or rejected at their peril. It is for this reason that the present little book has taken the form in which it is presented; it does not advocate any German or American mode of applying the laws which govern the art of teaching, but seeks to elucidate the laws themselves in accordance with which teaching is living truth, and in opposition to which it is dead formula.

The secret of the great success and thorough naturalization of the Kindergarten, is that it is based on these natural laws. It has led in its turn to a demand for a consistent education. Children who have been educated up to this point by methods which aim at the awakening of their interests, must, perforce, go to schools conducted on the old lines of dry formal instruction, appealing not to the understanding, but to the memory. I have seen and deplored the gradual extinction of all interest under the process.

Whatever other remedies may be needful to recover lost ground, Education is one which we must apply.

England's opportunity in the last years of the eighteenth century was Continental war destroying commerce; in the last years of the nineteenth century it is Continental militarism sapping it. Hundreds of thousands of workers are withdrawn from production, and heavy taxes oppress the trading classes. 'The French military expenditure for the present year has been fixed at £25,320,000; that of Germany will probably amount to over £30,000,000. And not only do these requirements absorb the revenues, they hinder national labour, the development of industry, and paralyze commerce; they engender misery and discontent; they thus trouble order at home and threaten international peace.'* These facts will undoubtedly remain for some time, but they will not continue indefinitely; the magnitude of the expenditure forbids it. While they last they are England's opportunity. Maintaining an unassailable fleet, she is under no further compulsion to join in the race of armaments, and can well afford to give the best possible

* *Studies in Diplomacy.*

mental outfit to those who in thirty short years will be the officers and men of her industrial army.

But a new practical departure is needed besides the technical schools for promising Board-school boys and girls, a practical realization of the abundance of good educational ideas in circulation which too often remain ideas only. It is useless to expect existing public schools to take the initiative, their traditions will not allow them to do so. The private school, on the other hand, is too small, too often hampered by want of capital, fearful of offending its particular clientèle, or too dependent on immediate pecuniary results to make a bold departure and carry it out with the thoroughness which commands success. There is also the objection that private ownership is a serious bar to any considerable grant-in-aid; it is not in reason that the public should come forward to endow some worthy gentleman's school, necessarily surrendering all control over the system on which it is conducted.

For these reasons it seems that a new public school is called for to practically show the results of methodical instruction, and to show them on a visible scale. It is not too much to say that it should turn out 80 per cent. of its boys fitted to compete successfully with those not so trained, and this because an educational method which is not an artificial system, but is broad-based on the laws of working of the human mind, must supersede the necessity for the crammer and all the attendant brain-fag of the last three years, a stress which often permanently injures the health both of those who succeed under it and of those, and they are many, who fail. It will do this by the use of the priceless opportunities of the early years, not for stuffing with "knowledge," but for the formation of those habits of attention, observation, and correct inference whereby alone real knowledge is easily and permanently acquired. Competition may be an unwelcome necessity, but for the present it is a necessity. There are, I believe, schools where it is ignored and an ideal education is aimed at. Such are scarcely for those who have their way to make in the world of to-day and to-morrow. Any durable system must be judged by the equipment it gives for actual life in the work-a-day world—a world in which competition has yet a large part to play.

A school which is to realize these hopes and succeed in these aims must rest on unassailable biologic facts, its system of instruction must be a science as well as an art. The particular wording in which these psychological facts are formulated into "laws" is a minor matter; it is as easy to express them in a religious as in a scientific diction, for all true science has its religious as all true religion has its scientific aspect; but it is essential that the facts be recognized, and if recognized and acted on they will ensure its success, for they cannot be overthrown nor turned aside.

CHAPTER I

PHYSICAL AND BIOLOGIC FACTS

"Grant that the phenomena of intelligence conform to laws; grant that the evolution of intelligence in a child also conforms to laws; and it follows inevitably that education cannot be rightly guided without a knowledge of those laws. To suppose you can properly regulate the process of forming and accumulating ideas without understanding the process is absurd."—HERBERT SPENCER.

1. The great discovery of the century, which underlies all that better understanding of natural process in which scientific advance consists, is that Energy or Power is a real thing, existing in all material in definite and, as a rule, in measurable amounts.

A hundred grains of gunpowder, for example, and a hundred ounces of food contain definable amounts of this thing. When the powder has been ignited, the gases produced contain the same weights of the same elements as existed in the unburnt substance, but they are now inert,—the available power or energy has gone from them. Nor are there any means known to man whereby this energy can be generated; it can only be released from certain of its combinations with matter. Although associated with matter, energy is an entirely different thing from the matter which contains it; it is electricity in the wire, heat in the steam, chemical power in the food, and in each case the amount is definite and exhaustible. Machinery of any kind is but a device for releasing part of the energy from some combinations and applying it to others; and whether the machinery be set to run a mill, drive a train, warm a house, or light a street, does not affect this truth—every turn of the wheels, every degree of warmth, every candle power of light, means a certain definite amount of energy expended to produce it. It is an incontrovertible truth that every physical change which takes place on the earth involves a transfer of energy as its essential proximate cause; and this transfer is the essential factor in all the changes which matter undergoes, the kind of such change and its amount being strictly dependent on the kind and amount of the energy added or subtracted.

The human body is primarily a machine for the conversion of energy into consciousness. We eat rather to assimilate energy than to ingest matter to be worked up into bone and muscle; indeed it is the energy taken into the body which enables it to perform the latter purpose; and the definite amounts contained in food first form, and then replenish, the vital capital of the living body. The powers of brain and muscle with which an adult starts in life, and whatever further capital he may possess, monetary or other, are, in the last analysis, only valuable as the available stock of energy he has to draw on, or a recognised means of obtaining more by exchange. The material wealth of the nation is the aggregate of such stocks; and every brick that is laid, every yard of cloth that is woven, every movement of goods, all these are using up, productively or unproductively, some of this energy. It is a real thing, existing in definite amounts in fuel, food, and material substances, and comes to an end as surely and in exactly the same manner as a bank account, by the drafts on it. If these are sparing, the stock will last long; if recklessly drawn upon, it will be spent quickly,—but in either case the amount is definite and measurable.

This is not a theory, nor a curious way of stating that work produces weariness, but actual hard fact. The smallest personal and the greatest national problems depend on the wise use of the available stock.

How it will be used depends largely on each one of us. The first call on it is for the purpose of pumping—for the muscular contractions of the heart which drive the blood through the body; and as the entire volume of blood is driven through the veins in about three minutes, and the tubes are very small and of great aggregate length, the power required is considerable. The involuntary muscles of breathing, digestion, &c., lay claim to another portion; and yet another is required to organise tissue to replace the waste continually going on, and for the secretions. In youth, more matter is thus "organised" (converted into organic cells) than is wasted, and growth results. After these results have been satisfied (and not properly till then), the balance of unspent energy is available for other purposes. If all of this be not required, the unexpended portion may, within certain limits, be spent in organising fatty tissue as a reserve of substance and energy for future use; hybernating animals do this, and indeed some human beings manifest a strong tendency to make this purpose prior to demands they would willingly give the preference to! Should still more food be supplied, the digestion is impeded, as the furnace of an engine is clogged and its function hindered when over filled.

According to Dr. Lyon Playfair, F.R.S., C.B., who for several years directed a series of official investigations on the subject of military rations in England, France, Prussia, and Austria, an adult man in good health requires daily four ounces of proteinaceous substances, and at least ten and a half ounces of dynamic substances (hydro-carbons and carbohydrates). This is of course the dry weight, without the moisture which all food so largely contains, and may roughly be said to correspond to 21 ozs. of meat and 43 ozs. of bread, or their equivalents.

That there is not much to choose between the food required by a growing boy and an adult, any person who has had charge of feeding the former will not require theoretical considerations to prove; and if less than the necessary amount be given, the expenditure of energy will be stinted in one direction or in all. But however short the supply, the demands of the heart and lungs can be but little reduced, and the result of innutrition will be first seen in the fall of the balance of energy available for external work, and afterwards in stunted growth. If there be a loss of heat by reason of insufficient clothing, the case is precisely the same in a heat-engine of flesh and blood as in one of iron—less of its energy will be available elsewhere. Another way of stating this truth is that an under-fed child can do but little work. But, given a healthy amount of food and clothing, there is a considerable daily balance of energy, which it rests with the individual how he will use.

There are two principal forms in which it is spent—thought and muscular action. That thought is a form of energy cannot be doubted; not only is it accompanied by a flow of blood to the brain, and by molecular changes in its substance, all of which necessarily imply the expenditure of power, but many experiments have been tried on the waste products of the body under different conditions; and using the scientific test of the amount of carbonic acid and allied products as a measure of the amount of energy, it is found that, while in idleness there is a marked diminution of these, there is not much to choose between the waste involved in brain work and that from muscular action. The human body is therefore continuously engaged in transforming the energy latent in food to its own purposes, primarily for the organization of matter to repair its own waste, and for warmth; and, secondarily, into muscular and mental power.

2. These laws of energy are fundamental to the understanding of all biologic problems, for all such are reducible

to its internal and external transformations. The external transformation of energy deals with the methods whereby mind directs the external powers of Nature to foreseen ends; the internal, means that process by which food is worked up into living blood cells, and these are built into the physical body, which is the vehicle of consciousness. This consciousness is manifested under higher and more perfect forms under conditions favourable to its development; it is, in fact, an evolution, and the exact use of this term is, before all things, necessary if it is to be used as a basis of reasoning. Owing partly, perhaps, to the frequent use by popular writers of the figure of speech known as personification, Evolution is sometimes thought of as though it were a cause of phenomena, a kind of driving force in Nature, and a substitute for Deity. This is not so. Darwin, Spencer, Wallace, and Huxley, who may be taken as the leaders of thought on this subject, one and all treat it as a process whose cause must be sought elsewhere. Evolution "means a gradual change from a condition of relative uniformity to one of relative complexity," either in a race, as from the hedge geranium to the garden plant; or in an individual, as from the tadpole to the frog. Its general outline may be stated as follows:—

There is a tendency to vary in living things. Whence this tendency comes has not been indicated, but variations are transmitted to progeny.

It is another fact that some variants are better fitted to their surroundings than others.

Animals multiply in excess of their nutriment, which, being insufficient for all, involves in all cases the death of many, often of most, of those born.

It is reasonable to infer that those who are best fitted to their surroundings will survive rather than those worse fitted. This is demonstrably the case, and this process is called Natural Selection.

There is observable another parallel process, by which the more vigorous, highly coloured or otherwise attractive, males and females secure progeny, and perpetuate their variations; this is called Sexual Selection.

These are unmoral processes, and go to make up what is called the Struggle for Existence, the Cosmic Process, or the State of Nature; and the theory that species and genera were produced by this process through the inheritance and accentuation of variations, is called the theory of Evolution.

The credibility of the theory stated above depends, of course, first on direct evidence, and secondly, on the number of facts which it reconciles. These are so many that the explanation which has been slowly perfected by the labours of Buffon, Cuvier, Lamarck, Darwin, Wallace, and many others, has commanded universal assent.

No other theory covers anything like the same amount of fact, and so entirely is this the case that no other can be said to be in the field. Its enemies are reduced to raising objections to minor points, and refuting certain over-applications of it which ignore the moral factor in humanity. It is fully accepted that organisms tend to adapt themselves to their surroundings, and to transmit those adaptations to their progeny; also, that the particular form taken by variation depends on the conditions under which an animal lives, collectively called its environment. The fact of transmission of variations is called Heredity, which is therefore the transmission of variations primarily due to the growing energy of the organism directed into particular forms by the environment.

Over the past, represented by our own heredity, we have no control. We cannot change the facts which have made the degenerate, the neurotic, the hysterical, and the criminal. But these are only names for human beings who, by a certain train of causation, have had certain impulses developed and others left fallow or suppressed. A different train of causation in other subjects will awake the capabilities to hold these impulses in due check. This future, now represented by the environment, is greatly within our power. Heredity being but the transmitted effects of past environments, we have to make a suitable environment for growing organisms if we wish to mould them to our ideals, and this is the meaning of Education.

So far nothing has been said about this environment being either good or bad, of the external direction of energy being useful or the reverse. An engine may pump water which only flows back into the mine; the man may drive a treadmill which only grates round and round; he may spin mere cobwebs of the brain; or may labour to deceive his fellows. Each of these spends much work, but none is useful. What is the meaning of "useful" and "good"? Does a good environment mean nothing more than one which squares with our desires? We are, in fact, face to face with the moral question. Is the notion of an evolutionary process destructive of the moral idea?

3. In the second Romanes Lecture, Professor Huxley gave a very remarkable argument to show that it is not. After sketching the leading outlines of the theory of Evolution, he brings out, that though the cosmic process works mainly by natural selection, that this is not by any means the only method by which varieties may be begun or be perpetuated. As one out of possibly many others he instances a garden. In it the gardener provides an environment such as will favour the varieties he wishes to obtain and preserve; he makes free use of crossing (sexual selection) and ruthlessly destroys all backsliders, while by keeping down weeds he abolishes competition for air, light, and food.

This Huxley calls "the state of art," in which the ideal of an external agent is substituted for the free competition of nature. That this system cannot be applied to mankind in the uncompromising manner which Plato advocated and on which its success depends, it scarcely needed a Huxley to tell us; though it is well to note that his reason for the conclusion is not a doubt whether social reformers who wish to play Providence to their fellows would be sufficiently ruthless, but a certainty that they could not be sufficiently discriminating.

But it does not follow that we are thrown back on the principle of unmitigated competition. "It is a fallacy," he tells us, to think that "because, on the whole, animals and plants have advanced in perfection of organization by means of the struggle for existence and the survival of the fittest, therefore men in society, men as ethical beings, must look to the same process to help them towards perfection." As well suppose that because two meltings improve iron we have but to continue the process to reach steel. "Fittest," we are reminded, does not necessarily mean "best," but only "most adapted to the environment," and the law of selection sometimes leads to the survival of distinctly lower types, *e.g.*, the setting in of a glacial epoch causes the survival of a purely Arctic fauna. "Social progress means the checking of the cosmic process at every step, and the substitution for it of another, which may be called the ethical process, the end of which is not the survival of those who may happen to be the fittest in respect of the whole of the conditions which obtain, but of those which are ethically the best." We have here a new standard, the ethical, which fosters quite other qualities than those which make for the escape of the individual from environing foes. These latter qualities are "the inheritance from the long series of ancestors, human, semi-human, and brutal, in whom the strength of this innate tendency to self-assertion was the condition of victory in the struggle for existence. That is the reason of the *aviditas vitæ*—the insatiable hunger for enjoyment—of all mankind, which is one of the essential conditions of success in the war with the state of nature outside; and yet the sure agent of the destruction of society if allowed free play from within." This is the biologic version of "original sin," and expresses the fact that the self, which has to develop along these lines, must first become a self strong enough to be an ethical character at all.

That some such new departure was required in view of the excessive lengths to which the individualist and competitive idea has been pressed, is clear from the following primary facts :—

(1) That whereas among animals, out of every hundred individuals born a considerable number are killed off by their foes year by year for want of strength or agility, scarcely any dying of old age, it has long been recognized by society that murder and starvation must be prevented ; and further, that most of the ailments, metaphorically called "foes," to which men actually succumb, are not external enemies at all, but are due to waste of vital power by the ignorance or vice of themselves or of others.

(2) That there are observable very strong social forces of which natural selection takes no account ; such as the desire of men to stand well with their fellows, and the imperative need for specialization in different and mutually dependent pursuits.

(3) That man aspires after Truth, Beauty, and Right, *i.e.*, the Absolute, and has spiritual faculties, which greatly transcend his merely physical powers.

There are also some secondary facts that are worth mention. These are :—

(4) That marriage does not go by physical fitness alone.

(5) That during the prolonged human childhood, parental and conjugal affection have time to become habitual.

(6) That men under widely diverse conditions of place, time, and circumstance, have agreed on the same first principles of morality.

(7) That the path of moral evolution is observably the same in all religions, both Eastern and Western

philosophies working out to the same climax, and that a very strange and seemingly contradictory one, namely, Renunciation as the gate of the higher life.

These ethical facts are just as much facts as the cosmic ones. They are phenomena of a social process which is in direct contrast to the cosmic process. The one is competitive, the other is co-operative; the method of the one is war, that of the other is love; the one is the struggle against others for particular good conditions, the other is the combined effort for general good conditions. But the full development of the latter process in the ethical man, however sharply it may contrast with the former, is not a mere reversal, but is only the change in the direction of the resultant impulse which comes from great increase in one of its component forces. Nature knows no abrupt transitions. Her most violent changes, the earthquake, the volcano, and the cyclone, are due to slowly gathering powers. Very far down in the scale of existence may be seen the ethical process working side by side with the cosmic process,* taking greater and greater significance as we pass from the mollusc to the vertebrate, to the mammal and the human, but always there.

4. Do not these considerations throw quite a new light on the evolutionary process? Let us review the conclusions.

(1) The ethical factor is visible very early in nature as the struggle for the life of others, which finds its expression in maternity and its solicitudes.

(2) The cosmic process has produced at its summit an ethical being.

(3) The conditions of nature are such that, in the judgment of this being (who is *ex hypothesi* competent to pronounce), there is steady improvement. "Fittest" does on the whole mean "best," and the conditions are such that adaptation to them means advance of the type.

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* Herbert Spencer. *Data of Ethics*, ch. xii., §75.

The presumption that the cosmic process has an ethical purpose becomes all but mathematical demonstration.

This abstract is of course not intended as a proof of the being of God, and of that Sovereignty of Ethics which is called the Divine Government. This sum of truth is perceived as a spiritual axiom if perceived at all; all that is meant is to point out that no conclusion drawn by Philosophy of the logical necessity for an Eternal Power, creating and sustaining all things, is vitiated by the mode of His action being partly seen; no aspiration of Religion towards the God of Righteousness, and towards the Eternal Love as the Fount and Origin of all Beauty and all consciousness, is checked by the perception of that Righteousness realizing itself in a material world by material agencies, and under the limitations implied by material forms. If the development by still unknown agencies, and as yet secret operation, of the vegetable from the inorganic, of the animal from the vegetable, of the human from the brute, of the ethical man from the natural man, should prove to be the fact, would not this only show the ethical process not "disparate to that world of sequence and sensation which is the ultimate base of all our real knowledge"? This process as described by Huxley, though adverse to the cosmic process, is its legitimate end; it "depends not on imitating the cosmic process, still less in running away from it, but in combating it." It is to be in the world, but not of it, to put away the old man and to put on the new, to die to the flesh and to live to the spirit. The teaching of Christ, whatever it may have to say on the cause of this process, knows no other conclusion to it.

It is interesting also to note that this end reached by the path of experimental science as to the nature of the world and of man, is practically identical with that attained by Plato 2,000 years ago, not to speak of the Eastern systems which, according to their intuitional method, posit similar ideas and deduce all phenomena therefrom. Plato considered the Good as the *ὀ͂ν ὀ͂ντως*—pure Being—Spirit, perceived under its attributes of Righteousness and homogeneity; matter as *ἕτερον* or *μὴ ὅν*; and in order to explain the infusion of the idea into matter, he inferred a connecting link, the *Λογος*, *νοῦς*, or divine energy, by means of which phenomena occur. These phenomena being necessarily the reflections of their causes, and the world being made up of phenomena, it is in so far as the reflection of eternal causes is perfect, the *ἐικὼν τοῦ θεοῦ*, and as the Logos is a perpetually active cause in it, it tends more and more towards this archetype. Except as the end of an intuitive method using a particular terminology (which never can be complete and absolute, but only a more or less successful attempt to express ideas which transcend language), this does not differ much from the conceptions of God, Energy, and Matter presented by modern science, which, though expressly confining itself to the two latter, displays as its latest and greatest triumph the discovery of process, cosmic and ethical, called Evolution, which expresses the modes by which the immanent directing Power is seen to make for Righteousness.

5. That the competitive struggle for mere subsistence of the animal world which is called Natural Selection, is not now applicable to man, is admitted; that the "state of art" formulated by Huxley is impossible, it is needless to prove. There remains the ethical process as the line along which human evolution must in future take place. But this, if real, must be due to an actually operating force. Like the cosmic process, it is a process, and therefore cannot be a force in itself, but is merely an observable sequence. The proof of a force is its observable effect. Before the ethical process can rank with the cosmic process, there must be plain proof of a selective power among men, eliminating those who refuse to obey it. Is there any such effect visible? History must supply the answer.

Looking down the vista of the ages, not only may we see the social unity evolving by markedly similar process in all lands; material civilization from the stone hatchet to the engineering workshop; government from the absolutism of the Babylonian king, 'whom he would he slew, and whom he would he kept alive,' to the reasonable liberty of the modern state; religion from human sacrifice to the Golden Rule; but we can hardly read history without seeing that this general advance is brought about by a process of selection very like that of the brute creation, with the difference that extinction of moral influence takes in the former the place of physical death in the latter. The criterion of a nation's survival as a centre of evolutionary activity is visibly an ethical one. Every nation which has risen to greatness has done so in virtue of real and positive qualities, a true insight combining and directing its individual energies to a great purpose. Every one that has fallen from its high estate has lost that pre-eminence through traceable infractions of the moral law. Not Philip of Macedon nor the Roman arms brought ancient Greece to her end, but indolence, cruelty, and lust. The selfish and exclusive temper which made Athens despise and hate Bœotia, Phocis, and Sparta, divided a territory smaller than Ireland into twelve or more petty kingdoms, and pitted them against each other. Internecine war between States which might have been a confederacy to guide mankind in art and philosophy, and to defy the world in arms, resulted in two or three of these States securing a vast number of slaves of their own race and blood. Left free to multiply, these slaves might well become a danger to their masters; and in Sparta at least they were from time to time massacred by the youths of the nation, who set ambushes (Cryptia) for them, and stabbed them as they returned from the work of tilling the soil and providing for the necessities of their murderers. Dr. Langhorne, in his notes to Plutarch, writes, "These poor wretches were marked out for slaves in their dress, their gesture, and in short in everything. They wore dogskin bonnets and sheepskin vests; they were forbidden to learn any liberal art, or to perform any act worthy of their masters. Once a day they received a certain number of stripes, for fear they should forget that they were slaves; and to crown all, they were liable to this Cryptia, which was sure to be executed on all such as spoke, looked, or walked like freemen." So gross were these cruelties that Aelian expressly tells us (Hist. Var. I., iii.) that the earthquake of 467 B.C., in which a great part of Lacedæmon was overthrown, was thought to be a judgment from heaven for inhumanity. But far more terrible than the passing earthquake was the real Nemesis of slow, sure consequence. An enormous slave population in Athens, as in Sparta, relieved the freemen of all healthy labour, and they accordingly became mere loiterers in the Agora or in the theatre, 'to see or to hear some new thing,' spending their time in nothing but pleasures of the body or pleasures of the intellect. Even the dialogues of Plato abound in matter-of-fact references to the unnatural crime which seems a special brand on decadent periods, though the idleness alone would account for the change of the artist into the dilettante, the philosopher into the sophist, and the free citizen into the '*Graecus mendax*.'

So also not the arms of the Goths, but the tyranny of the Proconsuls, was the real cause of the fall of Rome. Greece could not federate her tiny Republics into a Hellas; Rome unified Italy, but the idea of equal rights for all her subjects was beyond her. Her conquests were indeed welded into one whole, but with the object of turning all the currents of wealth towards herself. Introducing law and order, and conciliating the subject-races by a somewhat disdainful respect for their religions and forms of government, Rome introduced also her intensely selfish provincial system. Disarmament was imperative, taxation was necessary, tribute was excusable, but the prohibition of all political and commercial arrangements between the people of adjoining states was the most cynical avowal of the principle 'Divide and reign.' If Rome was the genius of order, she was also the very embodiment of selfishness. A regular fiscal system might have made the taxation endurable, even though the Provinces might still have been considered 'the estates of the Roman people.' But the entire absence of any system, except the obligation laid on each Proconsul regularly to transmit the specified tribute to Rome, without any supervision of the amounts collected or the methods of collection, had the effect of handing over the helpless provincials to greedy ex-consuls and ex-prætors, who looked on their short tenure of office as an opportunity to repair past extravagance and to heap up colossal fortunes for future enjoyment. Nor was the extortion limited to the Proconsul. The taxation of the provinces was farmed out to publicani and negotiatores who battened on the slavery of the civilized world, a mob of grasping office-seekers was created at Rome, and a hungry rabble with nothing to sell but its votes was with difficulty kept in good humour by lavish displays of magnificence and blood, and constant largesses of corn and oil. The class of sturdy yeomen and peasants who left their fields to follow the standards of Camillus and Fabius had become that urban proletariat which can never supply stalwart soldiers; the legions were recruited from Gauls, Thracians, and Germans; and the frontiers of the empire were thought to be secured by a juggle between places of service and places of recruitment, while the few exclusively Roman corps became prætorians—the titular guards of despots, who used them to crush all political freedom, and were speedily used by them for their own enrichment.

The very virility of the Roman character led to a deeper fall. The Greek took delight in honourable rivalries of strength and skill at the national games: the Roman frequented the amphitheatre, and the fairest women and the most refined and honourable citizens looked on with smiles and wagers at the scene of blood below, where real wounds and death were inflicted on helpless slaves or trained human bull-dogs. To devour without end and to produce nothing was the final outcome of the iron empire which claimed to sit a queen for ever, throned on the seven hills of the Eternal City, ruling over the kings of the earth. Here again sexual perversion followed on luxury, and the pen of a Juvenal could scarcely find opprobrium strong enough for the morals of a people which began their career by having no need for a law of divorce, and among whom the very name of adultery was scarcely known. Self-interest created factions, greed pitted them against one another in the rush for the enjoyment of that wealth which was poured into Rome from the four quarters of the earth and served, by producing a pampered army, a venal populace, and a corrupt government, to swell the pride, to nourish the luxury, and to dissipate the power of the masters of the world.

Spain, whose discoveries and enterprise colonized the southern half of the New World and started the great current of trans-oceanic trade which has ever since been, perhaps, the greatest factor in our civilization, lost her territorial empire and her moral leadership by similarly traceable causes. Needy and grasping viceroys and officials went to the Spanish Americas just as the proconsuls and publicani had gone to Gaul or Macedon, to extort in three years fortunes to keep them in luxury for the remainder of their lives. Religious bigotry added a new peril; and the favour of heaven was invoked by the torture or expulsion from Spain of all who showed that originality of thought which is too often branded as heresy. The natural consequence followed: intellectual and artistic life died down, and pride of race, pride of orthodoxy, and pride of wealth, produced rulers like Philip II. and Alva, whose idea of government was, not to guide the energies of their people to wise ends, but to trample out opposition as rebellion and heresy. The colonies one by one shook off the oppressive yoke of Spanish tax-gatherers, and the promise of the age of Cervantes, Lope de Vega, Murillo, Valasquez and Ribera, of Charles V. and his statesmen, of Columbus, Magellan, Cortez and Pizarro, ended in moral death.

The instances are too many to quote in which nations, once leaders in the van of progress, have temporarily or permanently fallen out of the race, owing to definite infraction of the ethical law. Neither art, philosophy, courage, nor even military skill can avail to keep a nation in the forefront of the race of Life; nothing but character, for without character philosophy is contained in treatises and not shown forth in lives, and art becomes a professionalism, not a nation's love of the beautiful. With character, a small nation of weavers can successfully withstand the armies of Spain backed by the wealth of the Indies. Without it the empire won by the fiery zeal of the Saracen melts in a single century like snow off the hills.

6. The outlines of natural process under which all faculty develops have now been briefly treated. Transfer of energy is the real proximate cause of phenomena internal and external. This power, whether shown as heat, light, electricity, muscle, or nerve-power, is not material. It pervades matter, and is transferable between bodies of matter. That most marvellous thing which we call life grasps that power, and manifests by its means in forms, first appearing as an organism, then as consciousness. Each individual consciousness expands under the limitations of environment, developing where the surrounding pressure permits, repressed where it constrains. Age by age, through transmitted faculties, the individuals of each race increase in power and complexity, and thus the type grows to more and more perfect power and expression, and new types are differentiated. Each grade subserves some purpose in the

mighty whole, is ministered to by some, and in its turn ministers to other existences. This general forward movement has culminated in Man, the most perfectly organised of all physical beings. With him, the factors which operate unconsciously in the brute enter the field of consciousness and dominate his further development. He no longer trains his body to feats of strength, sight, or hearing, when he desires higher developments of these powers—he invents the steam-engine, the telescope, and the telephone. He not only directs the external energies of nature to his own ends, but the internal also, modifying original types of plants and animals to those which more perfectly fulfil his requirements for beauty or use. Not only that, but he places himself and other men under the same kind of discipline, deciding the direction in which the energy he derives from his food shall be directed, and determining the man that shall be. His triumphs are won in the realm of mind. But he is still ruled by the competitive idea. Sprung from the brute, he is still bound by the brutal tradition called the struggle for existence. His lower nature would fain subjugate the higher to its low ideals of competitive selfishness. It has no aspirations, it seeks no *Civitas Dei*, it would eat and drink for to-morrow it dies; and the war between it and the higher life may be stated as the still imperfect transfer of our consciousness from the physical to the spiritual plane. Man has not yet learned his prerogative—how thoroughly he can bend nature before his higher will, how completely he might vanquish the cosmic forces by rendering a healthy environment possible for all. It is environment that has produced variations in the past, as it is to it that the horticulturist and the stock-breeder look to produce those at which they aim; so to it, and not to mere didactics, must the Educator look for his results also. Is it not now possible to found educational theories on the bedrock of natural law? Evolution means the cosmic process naturally working out to the ethical process, each being the manifestation of the living spirit. The cause of this progress from good to better is necessarily a moral cause.

Historical evidence supports this contention, which being established, education becomes the provision of such an environment as will favour the ethical process in the fullest application of that term; one which takes account of the physical and intellectual side of that process as much as of its moral side.

Not that the effort to provide a suitable environment is new, but have we not here a criterion of what makes an environment suitable or the reverse, a principle which will justify our choice by admitting of a demonstration of its methods? Does this not give a ground for consistency? Consistency we must have, for it is consistency that compels conviction; inconsistency means opposing and wasted efforts. Without some such basis physical education is empirical, mental education is arbitrary, and moral education is at variance with both, and inimical to the victories for which the two former are the avowed equipment. Mental education is commonly non-moral; it insists quite logically on competition; and it must be correlated to moral principle firstly, by directing self-assertiveness against the forces of the state of nature which presses on society from without, rather than against our fellows within; and secondly, by showing practically in daily life that the moral law is inherent in the very nature of every single thing we do or see. If energy or power is the great reality in Nature, diverse from matter, and so much more important that matter is chiefly prized for the energy it can furnish or resist; if the end of physical education is the attainment of the greatest power of which the organism is healthily capable; if mental education means the knowledge how this world of matter and energy can be directed; and if the end of moral education is perception how it ought to be directed; then it will follow that an understanding of the laws of energy and evolution must be the basis of any sound theory, and that these laws must be ever present to the mind of the teacher, to the end that he do not trangress their indications. It is for this reason that the educational problem has been introduced by its already accredited relations in physics and biology.

CHAPTER II

PHYSICAL EDUCATION

"To be weak is to be miserable, doing or suffering."—MILTON.

1. We all desire, for ourselves and for our children, the maximum of power. Power of muscle, to the end of distinction in sports, in athletics, in the hunting field; power for our daily work, for the endurance of fatigue, and for resistance to the influences which assail us, such as infective germs and other forces tending to break down some healthy structure or to drain our vital energies: all these are felt to be the first necessities of happiness. In a word, we desire a perfect development of body and that perfectly balanced interaction of function which constitutes health. Scarcely less do we wish for power of understanding. It is a peculiar and somewhat amusing fact that human beings cannot let things alone. We call it the prerogative of "Homo Sapiens" to account for all sorts of things which do not obviously concern him, and laughable as our pretensions often may be, it cannot be denied that this instinct for analysis is essential to human progress. If the cobbler thought of nothing but his last, and we all kept our interest solely for our functions in the social hive, human intercourse would be at the level which we may observe among the ants and the bees; and estimable as are these little insects, their functions would be somewhat limited as a human ideal! Understanding—that mental grasp which

enables a man to judge correctly of the nature and properties of the agents in play around him—is a form of power as essential as physical health to his prosperity and success.

More highly still is rated that form of nervous power which is called skill. Every action in which physical material is dealt with depends on the play of two sets of nervous functions, the sensory and the motor. Throughout the body there run fine white cords which end in sensitive points. These lie much more thickly in some parts than in others: a pair of compasses, 1-10th of an inch open, are easily felt as two points by the finger tips, while half an inch apart they cannot be separately distinguished on the shoulders. Contact with any external substance sends a telegram along these sensory nerves to the brain, and in a short but quite measurable interval a return message comes back along the motor nerves directing the contraction of certain muscles; these respond, and movement of the limb results. The weaver who deftly throws her shuttle, the cricketer who cuts a twisting ball, the soldier who parries a bayonet thrust, the artist whose hand exactly reproduces the image he sees, all depend for their skill on the quick response between the sensory and motor nerves of eye and hand. Skill is admittedly a matter of practice. This means that the action very frequently repeated tends to become automatic, and in the case of very simple actions (such as feeding a bullet-making machine with plugs of lead), the local nervous centres act almost if not quite independently of the brain; but until the action has thus become reflex, or nearly so, the method is that which has been indicated. Between this and the skill which makes the successful artist or surgeon (so far as their purely manual operations are concerned), the difference is simply one of degree, the latter using more nerves and muscles, and using them in far more complex manner. But in all cases here again power is the thing so greatly desired, nerve power, muscular power, brain power, and habits of direction, whence result health, strength, and skill; and these are the aims of physical education.

"The formation of habits is a real structural work, the brain cells are actually modified by the repeated direction of the will, intercommunicating nerve paths are marked out in the brain, which did not exist in the untaught infant; at every repetition of a movement, or set of associated movements, the cells act more readily and with less effort of the will in directing them, for the nerve paths become more clearly marked out, and impressions tend to slide more readily along them, until in time the movements or combined actions become almost unconscious or automatic. They have become habits, bad or good; they possess the body, which loses control of them. Transfer the picture to the intellectual sphere, and we see the same formation of mental habits as is found in the less mysterious muscular training. The easily repeated muscular movement has its analogue in the ready recalling of memories and words, things stored up in the brain cells."—(*Our Growing Children.* GERARD SMITH, M.R.C.S.: John Bell & Sons. 1896.)

2. What do these habits depend on? Life, modern biology tells us, may be expressed as the net result of nutritive and destructive forces: a living organism is perpetually adjusting itself to its surroundings. The first requisite for strength is such an environment as will enable the type to reach its full normal development.

What is the perfect physical human type it is easy to see: we have in the Greek statuary the most perfect presentment of the human form. Among any healthy, well-fed peasantry may be seen men and women who are as splendid statues of flesh and blood as any 'stone ideal.' We need go no further than our cricket field and tennis courts to see as good specimens of humanity as the eye can wish to rest on. But these are, after all, exceptions; our streets are full of puny, short-legged, narrow-chested, sloping-shouldered men; obese, spindle-shanked figures meet us so often that we forget to look at them. Imagine these in the garb of Homer's heroes! One is tempted to suspect that half our "modesty" is due to the shame of our unsightliness. Why is all this? Why were the Greeks models of beauty, and we have so nearly lost the sense of beauty that we see ugliness without offence, and look on a fine man or woman as exceptionally favoured by nature, instead of regarding others as exceptionally degraded by art?

In the matter of health, too, how many of us are perfectly well, not troubled by neuralgia or indigestion, or headaches, who have sound teeth, clear skins, and can be indifferent to the slight climatic changes of our temperate zone, which should be trying only to the old or infirm?

To the former question we are apt to think there is no answer at all, for we have not yet learnt to apply practically the elementary facts of biology; to the latter we reply—over-pressure, anxiety, the strain of modern life; and in giving these answers it is assumed that, as the course of the world is unalterable, the matter is disposed of. Now, without minimising the fact that our social arrangements do severely strain the organism, obviously this is no answer at all when the subjects of the problem are boys and girls. For if the competition must be severe to the adult, then the clearly right course is to train the child so that, at maturity, he starts on his independent career with the maximum power of body and mind to enable him to stand the after strain.* To make after competition the excuse for an intellectual training which defeats its own object by rendering its subject less vigorous, and therefore less able to apply that training, is of all fallacies surely the most easily exposed. Yet this is constantly done.

Canon Kingsley (*Health and Education*, page 87) speaks of "the certain physical law that, in order to renovate the brain day by day, the growing creature must have plenty of fresh air and play, and that the child who learns for four hours and plays for four hours, will learn more, and learn it more easily, than the child who learns for the whole eight hours."

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* "A good physical groundwork keeps at a distance much of that terrible over-sensitiveness which parents and others so proudly boast of as "a highly-strung nature"—the modern habit of purely intellectual people, which, when fully fixed, keeps them in a lifelong state of suffering from exaggerated conceptions both of joys and troubles, favours and offences, realities and romances. Such persons live in alternations of impossible optimism and equally untenable pessimism, their want of physical groundwork preventing even their intellectual self-control."—*Our Growing Children.*

Schoolmasters and parents seldom take any heed of the laws which govern nutrition and growth, nor realize the root fact that the amount of energy which the body can take in (and therefore the fraction of this which it can give out) is a fixed and definite quantity of a real thing, that how it will be expended depends on the environment they provide, and that the habits of expenditure they inaugurate determine the bias of a lifetime.

Roughly stated, and apart from strict scientific definition of functions, the physiology of nutrition and growth is as follows. The body takes food not only for the purpose of assimilating substance to restore the tissues which waste in proportion as they are used, but also, and even chiefly, for the assimilation of energy, to enable it to perform the functions of life, among which the conversion of a small amount of this food into living cells is one. Two things, therefore, are assimilated in food—a small amount of matter and a large amount of energy. These two simply flow through the living form, like water through a standing wave. The degraded portion of nutritive matter is immediately cast out; the selected portion, with high potential energy, prepared in the alimentary canal in the form of a milky emulsion, is poured into the general current of the blood, where it seems to be converted into protoplasmic cells called white corpuscles. Professor Cleland thus describes the process of absorption:—"Watching these white corpuscles as they circulate in the capillary vessels in the web of the frog's foot, one may see that they often show a tendency to adhere to the wall of the vessel, while the red corpuscles keep in a stream in the centre of it; and it has been proved by repeated observation that white corpuscles are capable of making their way through the capillary wall, which comes together again behind them without apparent breach of continuity, while they pass on into the tissue." Having thus passed into the surrounding tissue, they give rise to muscle cells, nerve cells, or connective cells, &c., as the case may be. The proportion of these white corpuscles in the blood to the red ones varies from about 1 to 1,800 in the morning, to 1 to 400 after a meal; the average during the day being about 1 to 1,200. The process of digestion is started by the healthy irritation of the stomach, which results from the presence of foreign substance in it; this causes blood to flow thither, and this blood maintains the heat and absorptive process on which digestion depends. Actual inspection of the brains of persons whose skull has been injured shows that when quiescent, as in sleep, there is very little blood in the brain, which, on waking, is overspread with a rosy flush, the colour deepening when prolonged thought supplies the stimulus. The mere fact of use irritates the part used, and thus stimulates it, causing an additional flow of blood, *i.e.*, of the nutritive corpuscles, and therefore the nourishment is greatest to those parts which are most used.

It is clear therefore:—

(1) That exercise, whether of muscle or brain, supplies a stimulus which increases the recuperative supply, and therefore the growth.

(2) That due balance of exercise will mean enough to stimulate growth without overloading the blood by the self-poisons which come from over-used muscle or brain.

(3) That the growing organism must expend much more energy on the conversion of food into muscle and nerve cells than in later life, when this excess of energy is available for other purposes.

(4) That growth takes place mainly at night.

(5) That processes such as digestion, which make heavy

demands on the blood, should not be interfered with by other processes, such as sustained thought.

These are the truths which underlie wholesome physical conditions. An environment in which they are attended to will result in well-nourished, well-exercised, and therefore, so far as heredity permits, well-proportioned boys and girls.

Our public schools for boys leave little to be desired in the matter of exercise. Games in plenty are provided, and good arrangements are usually made to secure that all those who are physically fit shall take part in them. "Loafing," that fatal habit for any human being, is strongly discouraged. Indeed many parents consider that athletics are made the primary consideration, and that the education of the mind is too obviously put into the second place. They find that their sons leave school knowing well the duties of half-backs and forwards, of field and batsman, and a little Greek and Latin, but very little else; and assuming the teaching to be good, they sometimes think that more time should be devoted to study. But, notwithstanding the prominence given to athletics, an inspection of any large school will show a proportion, often considerable, of pale-faced, weedy boys, especially in the upper forms, whose looks do not testify to good health; and, taking all secondary schools together, it is certain that a very large percentage of the boys are constitutionally failures. This is not less the case among girls, with whom pallor, disordered functions, and delicacy of health are so common, as to be treated in a way which would lead one to suppose that it is widely considered that the Creator has laid these penalties on one sex.

Unhandiness is also a very common characteristic of the schoolboy. A boy who can use tools rationally or make the simplest thing well is quite the exception. He has generally no notion of accuracy. "It's near enough," and "that'll do," are among his commonest terms, and hence it results that among men and women, also, unhandiness is the rule, and the skilfulness and accuracy which play so large a part *in success,* the exception.

These facts must come of definite causes, and may be referred to the heads of personal hygiene and manual training, both of which are as essential parts of physical education as games and athletics.

3. Manual skill depends, as has been shown, on the due balance of the sensory and motor system, and therefore can only be acquired by repeated use of the nerves and muscles which it desired to train. These nerves are grouped and fitted to receive distinct sets of impressions, and each group constitutes a sense. For the present purpose they may be considered as the eye, the ear, the voice, and the hand. These of course interact. Nothing can be more unscientific in the educator than to look on the person as a bundle of separable "faculties," whether physical or mental. Development is inseparable from use, and this use leads not only to greater acuteness in the senses, but also to the mental habit of using them. This may seem more properly to belong to mental than to physical training, but in fact the mental and physical functions overlap, and this, according to physiological principles, is unavoidable. The human being is a unity. Physical, mental, and moral are but names invented for convenience of classification, and not an obvious distinction in human nature. Every conscious act, having its origin in the mind and its outcome in the body, has mental and physical aspects. Could we see the changes among the molecules of the brain, even pure thought would be seen to have its physical mechanism, whatever may be the force which sets that train of mechanism in motion. A rigid distinction between the physical and the mental is even misleading, for physical powers which are of the nature of skill are mostly developed through the mind, some mental ones through the body, while every act tends towards a habit, and therefore towards moral advance or retrogression. The cultivation of a sense, then, may be considered either as physical or mental training; but as the chapter on the latter

deals more especially with the understanding, the former classification has been chosen. To cultivate the eye and to acquire the habit of correct observation are different aspects of the same function; to train the ear means to distinguish between musical and unmusical inflections of sound of all kinds; to bring out the voice means to perfect the instrument for oral expression, whether by speech or music; and the hand stands for all that marvellous machinery whereby the muscles carry out the behests of the brain. That training the eye means the acquiring the habit of attention is easy of proof. As the organ is a purely mechanical contrivance, very like a photographic camera, there can be no doubt that the image which falls on the retina of the artist and that of the ploughboy is the same. The difference between them lies in the greater or less attention which they can give to the forms and colours which make up the image. To foster this habit of attention is to train the eye, and to train the eye is to train the mind, which makes use of it; the two are inseparable, and the same is true of all the other senses.

It need scarcely be remarked that this training, though mental, cannot be given by precept; it is given by means of the actual physical things observed, and this is the reason for its treatment here. To preach the habit of observation is to waste time and breath; it is acquired by the constant and systematic use of eyes and hands and ears for that notice of the differences between natural objects which constitutes accurate and systematized knowledge; and this fact, that the presentment of all new truths should, as far as possible, be a physical presentation to the actual sense perceptions, will be further alluded to when dealing with method in teaching.

Instruction of this sort, beginning with object lessons which bring out how things presented to the sight and touch differ among themselves, will go on to the observation of plant life, paying special attention not to systems, groups and names, but to things that the child can actually see, and teaching it to see hundreds of interesting facts to which it would otherwise have been blind. The method of training may be partly a mental one, but the result is physical—a well-trained eye.

Practically all children have 'ear,' though in very varying degrees—the results obtained in our National Primary Schools do not permit us to doubt it; and Mr. Campbell, the Principal of the Normal College for the Blind, has shown that there are very few persons who really cannot sing. Training of ear and voice naturally goes together. There are some children who have no aptitude for instrumental music, but in estimating the proportion of these it should be taken into account that music is almost always considered outside the school course, paid for as an extra, and practised in playtime. But even for those who are unmusical the training of the voice need not be neglected, and for this there is great need. How few persons can get up and say aloud what they really think, clearly and naturally! How few can even read aloud so as to give pleasure! But this (shyness apart) merely means want of habit in managing the voice, and of selecting fit words. Nothing is easier than to teach children to read aloud with attention to the sense, and to train them to speak accurately is scarcely less so; it is done by insisting on clear definite answers in class, given in good, plain English.

4. Lastly comes the training of the hand. For this I know nothing to compare with Drawing. Here again much misconception prevails. It is said that many children cannot draw; 'Little Bobby has no artistic tendency,' a fond parent explains, or, 'Drawing will be no use to him in his profession.' Now the fact that all children like drawing proves that they can draw. Man is of all animals the most imitative. From the neolithic savage whose 'graffiti' of reindeer, oxen, and mammoths are found on bones and

rocks, to little Bobby who becomes the proud possessor of a box of paints, the impulse is present in all till atrophied by lack of observation or bad teaching. Nor is it in the least necessary to aim at making artists—these are born, not made; the purpose is to give power to the hand accurately to fulfil the commands of the brain. Both exact observation and accurate reproduction are required; it is not possible to draw an object, even with the ruler and compasses, without carefully observing it; it is not possible to represent it without the hand forming clean, accurate lines. Every person should be able to draw plans and sections of simple objects, for it is in this way alone that clear ideas are obtained of internal structure and form. Every person should be able to use a pencil to explain their ideas, and a few lines of diagram will often explain more than pages of description. This does not involve any artistic faculty, properly so called. If that should be found, so much the better; it will enable the point at which mere imitation becomes creative (*i.e.*, imaginative and artistic) to be reached the sooner.

All modern educational authorities agree that no child should be allowed to grow up in ignorance of hand-work. Hand-work operates in two ways. Not only is it impossible to realize the difficulties of the tasks of the hand-worker except by the endeavour to do them, but perseverance and care are fostered to a very high degree. Hand-work, besides making those who practise it competent to direct others and to judge of their work, renders them capable in all sorts of ways, and would go far to abolish the contempt for manual labour which leads to so much class exclusiveness. For boys it is difficult to suggest anything better than carpentry—not that form of it which provides a workshop and a certain amount of wood to spoil and tools to rust, and perhaps an artizan to waste his time in giving hap-hazard 'instruction' in carpentry—but that which links the form drawn on paper with the manufactured object, begins with the use of simple tools one by one, and keeps dimension, and principles, and an object, in view the whole time. For girls, manual skill will chiefly bear on house-management and dress. Simple sewing, followed by plain work and cutting out, and, later, by a regular course of cookery learned and applied practically, will perhaps be the natural lines for this training to follow.

Capability is the great thing; all material will not take an equal polish, but every healthy child can be made capable. The world wants capable women who can direct their servants and manage their households, and, above all, women who, knowing how a child's body and mind grow, can direct their children in their turn. It wants capable men who, understanding the forces with which they are called upon to deal, are aware how these can and cannot be directed, who can judge of the feasibility of projects, of the soundness of enterprises, and can comprehend and respect the amount of technical training which the hand-worker requires, if we are to keep our place as a manufacturing community. These very essential lessons can never be learned by precepts alone, they are to be acquired by actual personal endeavour expended on real things.

5. A healthy habit of body is the next essential of sound physical education. Sanitation is now, happily, usually well attended to; but most of us teachers, it must be sorrowfully confessed, take little pains with matters even more intimately connected with health. This is of course not surprising in a society where irregular hours, unsuitable clothing, highly artificial food, and other transgressions are so much the rule, that irregularity of function, impaired health, and the loss of that buoyancy which is almost a synonym for happiness, are looked on as normal. If some more than usually candid medical adviser, perceiving a more than usually sensible patient, dare state the plain truth that unsuitable food and irregular habits are the root of the trouble, the recipient

of his advice may not improbably lament having never 'learned' anything of the laws of health. Though Abernethys are rare, this is widely felt; and among the points on which schoolmasters defer to 'modern fads,' it is not unusual to find two or three lectures of hygiene arranged for at some time or other of a school course.

Nothing can be more comically useless. Our habits are very powerfully moulded by our surroundings, very slightly by our knowledge; and health, like morality, results (*cæteris paribus*) from a wholesome environment, not from didactic teaching, which may be needed by the schoolmaster, but hardly by the schoolboy. In most schools the food is sufficient, and cleanliness fairly well attended to; though the matutinal British 'tub' is often omitted on account of the amount of water to be carried, as if a very few pounds would not lay on a tap and waste-pipe anywhere. But in how many schools is any care bestowed on securing the regularity of those functions on which health so much depends. Strong digestion comes of plain food and regularity. Now boys are often *told* to retire at a regular hour, but no provision is made for their doing so. It is a fact that children will not leave their play to attend to the calls of nature if they can help it. They will go constipated for days, because in playtime they are too absorbed to feel the need, and masters are rightly reluctant to allow boys to leave class. The matter is, however, a very easy one to deal with. It is not well to start lessons immediately after a meal, therefore let there be a vacant half hour after breakfast, and the requisite facilities.

There is also a very serious shortcoming in the matter of food. There are physiological reasons now well-known for the liking of children for sweets; a sufficiency of sugar takes the place of the more starchy food of the adult, and medical authorities are agreed on the need for a varied diet which takes due note of this fact. But in most large schools it is not attended to. The 'tuck-shop,' where boys can get sweets at odd hours, and spoil their regular meals, is a permanent institution. I know one in which the *profits* of the tuck-shop came to over £300 in one year. Mr. Cotterill, "*Reforms in Public Schools*," p. 97, quotes a case in which the *net profits* were £500, the tuck-shop being managed by the school authorities, and its profits going to the school. How many injured digestions, insufficient regular meals, how much defective nutrition does this enormous expenditure in irregular food imply?

For a boy who has, in his impulsive thoughtlessness, satisfied his healthy appetite with sweets, does not eat the solid food his organism needs. Let the regular meals provide plenty of good milk, fruit, and a proper second course of sweets at dinner, not 'stickjaw' puddings—said by boys to be selected because 'filling at the price,'—and let the tuck-shop be ended. It cannot be mended, and is not required.

There is another matter connected with personal hygiene which must be spoken of, however reluctantly. If the thing treated of were rare, there would be no excuse for raking in muck-heaps for filthinesses. But it is not rare, and to ignore it is simply folly. Every now and again a terrible scandal crops up, letters are written to the papers hinting at frightful corruption in schools; too explicit instances follow, editors close the correspondence, excitement subsides, and things go on as before. The Head-master of Haileybury writes (*Mothers and Sons:* 1895) of the efforts made in well conducted schools against this evil—that "they have failed of their fair and lawful measure of success because they have been of too narrow and isolated a character. Young boys have been protected with scrupulous care against one species of bodily indulgence, while gluttony has been allowed to continue almost unchecked. Where impurity exists in a school of generally healthy tone, it receives its impetus from boys whose wills are feebly developed . . . because the idea of restraining their bodily appetites has never entered their heads." The writer could of his own knowledge tell of two great scandals, one of which closed a large school, and another caused four expulsions and a suicide; but he prefers to quote from the purely medical work of Dr. M. Acton, who will not be suspected of sensationalism. "How diffused secret wickedness may become in schools appears now and then in scandals so dreadful, that the natural tendency of all concerned is to hush them up and forget them as speedily as may be. Indeed it is impossible not to sympathize with the feeling that, to be obliged seriously to doubt as to the manliness, and in a rough way of the purity, of our large schools, would be a great calamity. And in the main this confidence has been no doubt hitherto justified. Still there are points on which all concerned may be a little too confident, not to say remiss. . . . I think a schoolmaster should be alive to the excessive danger of the platonic attachments that sometimes become fashionable in a school, especially between boys of very different ages. I am not speaking of ordinary boyish friendship. . . . Growing as this does with the growth of the boys, strengthening with their strength, and cemented by scrapes, fights, sports, sorrows, all increasing their mutual respect and interest, such a manly, happy connection strikes its roots so deep as generally to survive most other ties. I am speaking of what schoolmasters cannot be ignorant of—the sentimental fancy taken by an elder boy to a younger, between whom there can be in the regular course of the school little natural companionship. . . . I know that such attachments have led to most melancholy results. I have been made aware that some public school-men have declined masterships in their own school because they knew the custom prevailed—which they were alike unable to sanction and afraid to attack. I have been informed that it has been preached at, not obscurely, from school pulpits. And I could point to living men with a wretched burden of recollection from it on their consciences, which they would give the world to erase." Dr. Ellis says of secret vice, "Would that I could take its victims with me in my daily rounds (at Hanwell Asylum) and could point out to them the awful consequences which they do but little suspect to be the result of its indulgence. I could show them those gifted by nature with high talents, and fitted to be an ornament and a benefit to society, sunk into such a state of physical and moral degradation as wrings the heart to witness."

This state comes on very gradually. The premonitory symptoms may be pallor, heavy eyes, less frankness of manner and directness of gaze, a tendency to loaf instead of joining games, a habit of listlessness, often accompanied by a liking for reading, none of which, however, is clearly remembered; a falling off in intelligence may follow, with clammy hands and dulled complexion: any or all of these would be changes calling for watchfulness. But they are seldom noted, and a boy often attempts to live both lives at once. Dr. Ritchie says:—"The parent, after her son is taken to an asylum, will tell you that his insanity cannot be accounted for. He has been so well conducted, so quiet and studious, not seeking the company of the gay, the idle, and the thoughtless, but remaining quietly at home rather than joining the social amusements of his age. Further inquiry may elicit that he had good abilities . . . . had few friends . . . . and rather shunned the society of the other sex. Had he been other than he was, some cause might have been found in the irregularities of life to cause insanity in one scarcely beyond boyhood's years! but in such a quiet lad, so carefully brought up, she is unable to suppose a cause. Then she may tell you that for some time past a gradual alteration has been going on . . . . he has become so peevish and irritable, so reserved in his conversation, so contradictory and so uncertain in his actions, so hesitating, first determining on one thing and then changing to some other, and has shown such a want of self-reliance; that quite recently he has grown more and more apathetic, more slovenly in dress, paying less attention to cleanliness, and slower in his actions; that he is now not only irritable in his temper, but at times violent; that he does things by fits and starts . . . and has become so stupid-looking and lost . . . . and all this has occurred without any apparent cause, except it may be his 'studious habits.'"

"It might be expected," says Dr. Ritchie, "that these cases would chiefly occur in members of families of strict religious education. Experience endorses this expectation; and facts also show that those who from this cause become insane, have generally to all appearance been of strictly moral life, and recognized as persons who paid much attention to the forms of religion. . . . The delusions in many instances assume a religious character, and hence it is repeatedly found that the cause of the sufferer's condition is supposed to be religion. From the true cause of the mental condition of these cases not being understood, the meaning of these reproaches for past conduct cannot be comprehended; and it is easily explained why a young man of apparently blameless life making these self-accusations is regarded by his friends as suffering from acute religious feelings, whereas remorse or fear has generally more to do with his condition."

But, perhaps, still graver consequences to the community are those which stop long short of the living death which is hidden by the walls of the asylum. Dr. Acton lays it down positively that many sicknesses may be traced to this cause, and that many of the complaints set down as nervous debility, much languor and loss of spirit, much feebleness of mind, much dimness of sight, much loss of manly bearing, and many cases of imbecile and drivelling old age, are the inevitable result of the expenditure of the vital forces in this way. Even worse than this ensues, for we are here dealing with more than merely physical results. The physiological law of demand and recuperative supply has been alluded to. The boy who abuses himself draws the vitalising power to a perpetual renewal of the seminal fluid, and thus sets up as it were a current in that direction; his body becomes an agency for turning its necessarily limited stock of available energy to this purpose, instead of to the building of healthy brains and muscles, and an organism is built up in which lust is a chief factor, a lust which will seem to him natural virility, but which is as truly artificial as drunkenness. The terrible train of social evils which attend unbridled passion begin here, and reform in this particular would go further than most of us at all imagine to reform the world.

Some may think that a discussion of this subject is unsuitable, and others that it pertains to morality, and not to physical education. I venture to differ. If the evil were in the way of being remedied without discussion, it would be prurience to discuss it, but it is not. As to the objection that these things concern morality, which is obvious, is it not the fact that we teachers are too apt to be didactic, and to think that command is the only means of dealing with evils; that counsel may indeed be added to precept by the very earnest, but that these make up the whole duty of the schoolmaster? Does not this attitude of mind result from an imperfect appreciation of the fact that the basis of true morality is the healthy body, and that this is much more a matter of environment than of precept? Healthy habits are due to healthy surroundings, and the chief of these are daily cold bath, abundant exercise in school games, plenty of real interest for the mind, constant occupation of one kind or another, and, I may add, no pockets to trousers. Good habits are formed by surroundings, and morality grows by these, not *vice versâ;* it also is a gradual evolution. Boys are not born with a developed moral sense, nor do they wish to be "good." To think so is to ignore both facts and psychology. They desire to excel in strength, and if their lessons and occupations are made as real interests as their games (which is quite feasible, utopian as it may seem), they will equally desire to excel in understanding, and will willingly use up their superabundant energy in developing brain as well as muscle, and have none to spare for immoral excitement.

6. School Routine.—The following winter and summer time-tables were devised in order to carry out as far as possible the principles which have now been indicated; they are not laid down as an undeviating routine:—

Winter and Autumn Terms.

Rise	6-45
Parade, and in fine weather a short run out of doors	7-15
Chapel	7-30
Breakfast	7-45
Vacant half hour	8-15
First school	8-45
Second school	9-30
Break	10-15
Third school	10-30
Break; luncheon of glass of milk and two biscuits	11-15
Fourth school	11-30
Games or drill; change into flannels and jerseys	12-15
Wash and prepare for dinner	1-00
Dinner	1-15
A quiet quarter of an hour in music room	2-15
Games, gymnasium, military drill, gardening, or practical occupations, according to day of the week and arrangements of classes	2-30
Dress	5-00
Fifth school—drawing class	5-15
Tea	6-00
Free time	6-30
Preparation for seniors	6-45
Re-union for singing and dramatic club	7-30
Chapel	8-45
Bed.—Juniors, lights out at 9-15	9-00
,, Seniors, lights out at 10	9-45

Summer Term.

Rise; biscuit and glass of milk	5-45
Parade, and in fine weather a run	6-15
Chapel	6-30
First school	6-45

Breakfast	7-30
Vacant half hour	8-15
Second school	8-45
Break	9-30
Third school	9-45
Break ; luncheon of biscuits and milk	10-30
Fourth school	10-45
Break	11-30
Fifth school	11-45
Free time	12-30
Wash and prepare for dinner	1-00
Dinner	1-15
A quiet quarter of an hour in music room	2-15
Games, drill, workshop, gardening or music	2-30
Dress	5-45
Tea	6-00
Free time	6-30
Preparation for seniors	6-45
Re-union for singing, &c.	7-30
Chapel	8-45
Bed—Juniors, lights out at 9-15	9-00
,, Seniors, lights out at 10	9-45

Saturday will be a half holiday in winter by the omission of fifth school. This provides for twenty-nine lessons in the week, of three-quarters of an hour each, an amount of head-work which has been found sufficient for the juniors, and which allows of the whole of it being usefully employed, a condition not usual where long hours and too many of them cause much school time to be lost through inattention often of physical origin. For seniors another lesson period can be inserted either morning or afternoon, preferably the latter.

Several points have been kept in view in the arrangement of this program. Work and violent exercise immediately after meals are prevented, and the hours are arranged so that not more than four lessons ever succeed one another, and not more than two without a break in which the tedium of sitting still can be worked off. Also, the maximum time for spending in the open air is provided, according to season. Gardening, drill (either in the gymnasium or in the open air), and gymnastics, can be made interchangeable, to suit the weather. A further point is the evening re-unions. It has been practically proved that barrack-like surroundings are not a necessity of the school. Arrangements can be made by which the boys meet together either in hall, in the head-master's house or in that of house-masters, or in special rooms, according to the size and conveniences of the school, —most suitably of all in the music-room, which ought always to be provided—decently dressed for reading, for dramatic representations, for games, for musical evenings, and so forth. On some evenings reading aloud, on others a description of travel by one of the masters, a lantern lecture, or what not, will find its suitable place; which may even be varied by an evening gymnasium, sparring and fencing class, for those who will now and then prefer these fierce delights to more studious pursuits.

CHAPTER III

MENTAL EDUCATION

"Half the knowledge, with twice the power of applying it, is better than twice the knowledge with half the power of application."—MARCEL.

1. It has been said that this is a world of action and not of thought, even though it were the noblest.* But right thinking is the preliminary to right action, and whether a man be making a shoe, laying out an estate, designing a steamship, or planning a colony, he works towards the idea which already exists in his mind. Thus it comes to pass that all our laws, customs, institutions, buildings, arts, manufactures, and social arrangements, are but our thoughts externalized in matter. That this is equally true of such things as are the complex products of many minds scarcely needs proof, for they obviously represent the algebraic sum of the intelligences and the activities which produced them. Every social unit has to give and take, to yield his will on some points in order to gain it in others; and the final result of this action and interaction is the net force which is made externally visible as the polity of the society of which he is a unit, whether family, school, municipality, or nation. Thus, each in his degree, we work out our ideals; we strive to realize whatever we think best worth effort, and this realization is made possible by the understanding. For, in order that our ideals be rational,

* Carlyle.

they must be possible of accomplishment, or approximate accomplishment, and this possibility turns on their conformity to natural and ethical law. In other words, the worth of the ideal towards which we determine to work in any branch of industry soever, depends on the understanding of its true purpose; and its realization, on the direction of energy to that end in accordance with natural law, which must be understood before it can be applied. There is no purpose in life—from the cobbler's to the Prime Minister's—of which these words are not true. Understanding is, then, the first means to the ends of life, and the pre-requisite of that 'directive power' which is clearly seen in America to be the true aim of modern Secondary Education.* Where the energy directed is inanimate, the process is easy to follow. The house depends on the understanding of the architect; the perfection of machine tools and of the various technical arts are evidence of the ability of man to direct the inanimate energies of nature to express his mechanical ideals: heat, light, electricity, and motion are his obedient slaves when he understands the laws of their being. In dealing with vital energies the problem becomes rather more complex; but the facts that the horticulturist has produced the garden rose, the gloxinia, and many double flowers of beauty far excelling that of the wild prototypes from which these have been developed; that the breeder has given us the race-horse, the hunter, and the dray-horse—the greyhound, the terrier, and the bull-dog—all from one wild stock, and can in few generations produce animals whose speciality shall be wool or mutton, milk or beef, are sufficient proof of the plasticity of the vital as well as of the physical energies.

In the still higher province of directing human growth there are far fewer triumphs to admire; indeed the results will not bear comparison with those of the horticulturist, possibly because we have not yet recognized that there are definite laws under which this culture proceeds or fails, and the task of directing children, at least, is regarded as one for which no particular thought or training is requisite. But whether the subject matter in which an idea is to be realized be a hide of leather, a farm, a railway, a manufactory, a bank, a regiment, a jury, or a congregation, the same understanding of the methods in which natural and human forces act is the first pre-requisite of success, and the object of mental education is to develop understanding in those who are to direct these forces.

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* Royal Commission on Secondary Education, Vol. VII.—*Report of the Assistant Commissioner for America.*

2. Understanding is the name for the completed process of mind which begins with observation. It is a state resulting from the interaction of sensory and motor function closely analogous to bodily skill. The healthy mind is keen to observe. A stimulus by some external object arouses attention. This is the result of a motor act which fixes the mind to the sensory impression, and there results a percept. From many related percepts there arises a concept, or idea; and finally this concept is put into words or visualized. The mental process, then, is made up of the following steps:—Observation, attention, percept, concept, and formulation or visualization, according as the climax reached is an effort of reason or imagination. The purpose of mental education is to give—(1) the habit of close observation, (2) discrimination of likenesses and differences, (3) the power of correct inference, and (4) the command of language which is necessary to correct formulation, or the power to call up a clear mental image. The 'knowledge,' which is sometimes spoken of as if it were the purpose of mental education, comes incidentally.

Every text-book of Psychology gives these steps, under these or other names, as the mode in which percepts are combined into concepts. First, particular experiences; then generalization—the taking out of the particulars that which is common to them all; thirdly, application of the concept to practice; and lastly, after many applications—usually very long after—Formulation, the expression of the generalization by a statement. These are the unconscious steps of the mind, they are not an artificial system built up in the study; every person who thinks at all thinks in this way. That we all do not build up the same concepts out of our percepts simply arises from the tendency to too hasty generalization, which comes of a too limited range of percepts, from mental indolence, or from the bias which refuses to go to the facts at all. Our concepts—unlike those of little children—are too often the result not of a desire to know truth, but of a wish to make ourselves out in the right; in other words, they are not the expression of inferences, but of preferences. Their formulation is in still worse case, for too often we make wide generalizations in words we imperfectly apprehend, from a few particulars selected on no principle but that they are agreeable to ourselves.

That our real knowledge of the external world comes through the perceptions is admitted by all systems of thought, and few teachers will dissent from the verbal proposition. But it is as rarely acted upon as it is widely admitted in words, for instruction continues to be given on a system which ignores the proved psychological processes. The transformation of percepts into concepts is not difficult to follow. Take the concept of number. A young child perceives two similar things—marbles, oranges, fingers, or what not. It sees the fact in the one case, and applies it to many other cases. It hears the word "two" applied to denote one thing plus another of the same kind; it imitates this, and, after the manner of children, repeats the new word again and again, applying it, often wrongly, to all kinds of instances, wearying its nurse by iteration, and from all these particulars at last builds up the idea of duality. The visible addition of further units brings the growing concept to other groups of things than two, and the appropriate names are attached to these groups. Then the ideas are associated with the names and the symbols 1, 2, 3, &c.

Again, consider the formation of the idea of colour. Scarlet excites a vivid retinal impression. The young child holds up its picture of a soldier, and points to what excites its attention. It is told that this is "red." It at first applies the word to the thing (not to the colour) represented. Afterwards comes the application to many other red things—red cheeks, red apples, blood, embers, &c., and the child takes out of the particular experiences what is common to them all, and gains the idea of redness. Afterwards, again, comes the distinction between the shades of red, and the formed concept attaching to the name.

So with "force." The motion of a ball is visible; that a push is needed to start it is a particular experience. That more push is required to start a heavy ball than a light one is another. That yet more is required to move the table is again another. Thus is built up the generalization of force, that where there is motion there is or has been push of some kind; the truth arrived at is often applied and always found correct, and then serves as an "apperceiving concept" to the further generalization, that momentum (quantity of motion) is proportional to the acting force. The definition of force as a cause of motion comes last of all, following on the formed concept.

3. All our knowledge, so far as it is real, must be gained by these steps: for the mind works in this way, and our too frequent arrest of the normal process of a healthy mind does not invalidate the facts. If the gardener of human plants is to produce symmetrical and lovely forms, he must conform his methods to the laws of growth. But, as a rule, the process is reversed. We begin with the formulation. We set before a child a highly abstract statement, say Euclid I., 47, that the square on the hypothenuse of a right-angled

triangle is equal to the sum of the squares on the other two sides. This formulation of a general truth was reached through many particular trials, but the result is thrown at the boy and "proved" to him by highly abstract reasoning.

The right way, because the natural path of discovery, is to show that a right-angled triangle, of which the sides enclosing the right-angle are in the proportion of 3 to 4, has the third side equal to 5 of the same units of length, and that $3^2 + 4^2 = 5^2$; to go on to show that the same relation holds between the squares on the sides in other cases, both arithmetically and by actual mensuration (or weighing) of the constructed squares. The general rule can then be inferred, and lastly, we can start with the rule and prove it deductively, as in Euclid I., 47.

The meaninglessness to a young child of the words of the ordinary lesson is not at all realised. I take as an instance a sentence selected at random from a well known geography book for young children: "Rock salt abounds in . . . Cheshire, as do also salt springs, from which a vast quantity of salt is made by evaporation." I have taken some pains to discover the concepts attached to this. There is generally but one in children's minds—salt, the white, powdery substance of peculiar taste—table salt, in fact. 'Rock' salt conveys no idea whatever, and before the rest of the sentence can give the clear mental images which 'understanding' implies, an elementary but clear knowledge of the phenomena of solution, rainfall, springs, evaporation, and of the crystalline nature of the substance are required. The whole of these make up the mixed concept formulated in the sentence quoted, and until these 'apperceiving concepts' are formed there can be no grasp of the complex one. This is somewhat difficult to realise, but the study of children will convince anyone who takes the necessary trouble that it is the fact; and the history of the growth and meaning of language will show why this must be so. Words come to a child as pure conventions till he sees the actual things. When he has seen, heard, touched, tasted, smelt, he forms simple concepts of colour, form, scent, texture, toughness, pliability, brittleness, hardness, &c., which he afterwards builds up into more complex concepts of the properties of brick, stone, metals, and the thousand and one things of every-day life. The words in which these are expressed are then available as metaphors; and as the ante-natal growth repeats the evolutionary history of the race, so likewise does the post-natal growth pass through the stages of its mental evolution. Language passes from the absolute to the metaphorical use; but the metaphors convey distinct ideas, as in the vigorous youth of the race, only when the preliminary concepts are clear. The age of the child has little to do with its power of comprehending words, beyond the fact that, as time goes on, it must casually pick up many random percepts and combine them into ideas.

Lessons given in words of which the concepts are not clear are incontinently forgotten. Both failure and success have convinced me that the 'forgetfulness' of children, as applied to subjects of instruction, is for the most part a libel. When concepts are based on percepts, and presented in their natural order, children remember from term to term without repetition. Forgetfulness is usually merely an indication of an unnatural method of instruction, often to the *ex cathedra* insistance on the conclusions set down in books, to the hasty formulation of concepts before the percepts have been combined, or, most usually, to the omission of the percept altogether.

4. No one who has had to do with men who have been trained by practical contact with things, can fail to perceive how very much more sure is their understanding, within its own limits, than that which has been gained by descriptions of things. Hence has arisen the contrast between 'theory' and 'practice,' as though it were self-evident that theory

must be learned by words alone, and practice by contact with the things alone; or as if the multitude of subordinate facts, which are enforced by contact with the things, had not their place in a sound theory. But is not every theory which does not rigidly conform to practical conditions to that degree imperfect or unsound? The imperfections charged upon theory should really be borne by the system of instruction which deals entirely in words and makes theory bookish.

That no system of teaching by words alone can suffice, will be evident from the nature of language itself. Evolved from simpler forms of sound, and first applied to purely material things, it has afterwards been extended to abstracts. But this truth is scarcely at all made use of. Words were once probably all figurative, as Dr. Wallace has shown; and excepting nouns denoting material things, they are for the most part still figurative. What the figure expresses depends on the associations the word carries to each mind. Thus, 'express' is to squeeze out; 'depend,' to hang down, as from a hook; 'mind' comes from a group of words meaning man and human operations. "Even moral qualities may be indicated by words which are naturally expressive, as in *right* and *wrong;* the former is, in most languages, connected with *straight* and *stretch*, the latter word being imitative of the sound produced when stretching a cord, the only straight line accessible to primitive man; while wrong is undoubtedly the same word essentially as *wrung*, from *wring*, *wry*, *wrench*, *wrest*, and other words, meaning *twisted*." And these, it will be noticed, imply the innate faculty of discerning the morally straight line in departures therefrom.

As examples of this transference of meaning from the physical to the mental or moral, Dean Farrar gives—'imagination,' the summing-up of an image before the inward eye; 'comprehension,' a grasping; 'disgust,' an unpleasant taste; 'insinuation,' getting into the bosom of a thing or person; 'austerity,' dryness; 'humility,' relating to the ground; 'virtue,' that which becomes a man; 'aversion' and 'inclination,' a turning away from, and a bending towards, anything; and many others might be adduced. These, and all words applied to political or religious purposes, are simply figures, and have no absolute value when applied to any sort of mental operations. To children all words are mere conventions, and as they grow up additions are made to the scope of each convention, which is nevertheless limited by the original application of it. These are necessarily different; and hence it is the commonest thing for the teacher, in presence of a child who sees for the first time a workshop, a law-court, a review, a war-ship, or a cathedral, or any other real thing of which he has often heard, to find that the words in which these things have been described have conveyed no real ideas whatever. Every thoughtful person must be aware of the same imperfect apprehension of things about which he may have read with interest; and these facts point to the method of arousing the mental activity which results in a concept, or idea—the dealing, as far as possible, with things, and not with the mere nouns and adjectives which describe them to those who know them already, but have little meaning to those who do not.

It is common to hear, in defence of classics, that the knowledge of Greek and Latin gives the key to the meaning of words. That this is so to the adult understanding the very existence of Philology is a proof. But does it to children? How is the meaning of Latin words explained but by other words; and these can only connote the sense impressions that are associated with them. Our system of education is, Words! Words! Words! and, whether we know it or not, we take the line advocated by Mephistopheles, in which Goethe ridicules the verbal learning still so commonly prevailing—

'The best thing that the case affords
Is—stick to some one Doctor's words:
Maintain his doctrines out and out,
Admit no qualifying doubt;
But stick to words, at any rate,
Their magic makes the temple gate
Of Certainty fly safely ope;
Words, words alone, are your best hope.
STU.—But in each word must be a thought——
MEPH.—There is, or we may so assume—
Not always found, nor always sought—
While words—mere words—supply its room.
Words answer well when men enlist 'em,
In building up a fav'rite system:
With words men dogmatise, deceive;
With words dispute, on words believe;
And be the meaning much or little,
The Word can lose nor jot nor tittle.'—*Faust.*
Translation: JOHN ANSTER, LL.D.

Almost all our teaching is from books, and the retention of words its alpha and omega.

But how is the knowledge of things to replace the knowledge of words? Granted that the function of man in Nature is the direction of the energies of Nature, the power of wind, of water, of heat, of animals, and the multifarious human energies which are necessary to the farm, the manufactory, the shop, the counting-house, or the bank; it is not possible to bring these to the school, nor the school to them: how is the knowledge which afterwards turns to skill in directing these to be obtained? The answer lies in the fact that all these rest on material foundations, and the language which describes them is based on material analogies. The laws and properties of matter are the basis of the laws of life and of all human activities, and these laws are exemplified by one phenomenon as well as by another. It is the same principle that is manifest in a boiling kettle as in a steam-engine; in a common pump as in hydraulic engineering; in school accounts as in commercial book-keeping. The primary concepts out of which all the later ones are built up can be given by actual contact with the natural objects of the garden, the workshop, and of physical nature generally; and the complete activities of the nation can be grasped by letting children into the methods and government of the little world of school. The things which are under observation supply at once instances of the universal principles of causation, and give an insight into the meaning of words. The value of this thoroughness will be found when we begin to apply the words whose meanings have thus been grasped to the world of ideas and moral percepts, for here, where both percepts and concepts are imaginative, clearness is more than ever required; for the aim is not that a child should appropriate the formed concepts of other minds, but that he should form his own correctly. We want to be taught how to think and how to act, not what to think and what to do.

5. Simple concepts are, in their turn, material for further combinations in the mind. They are made the basis for those wider generalizations which formulate complex actions or laws of nature. These generalizations are called truths, and Truth, according to this view, is correctly formulated perception. The pen stops as this sentence is written: if correct, it is so terribly far-reaching. For if truths can be defined as correctly formulated perception, the Truth* on any subject is the aggregate of real human perceptions formulated according to the laws of mind. Oppressed as I feel with the daring involved in the use of these words, I venture to hope that they will be found tenable. For on this premise is it not clear why no final formulation is possible to man? And is not the formulation of The Truth

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* Truth, not Principle. Facts are evident to appropriate senses, and the relations between facts are not truths, but themselves facts of a higher order. A description of a fact of any order when correctly formulated is a truth; but what the relation between existences shall be depends on the cause or principle giving rise to these existences. This is often, but I venture to think wrongly, called external truth.

necessarily the statement of the whole cosmos, material, mental, and moral? And even if we could be certain that there can be nothing to appeal to appropriate senses in cases where we have no percepts, would not even this be final reason why "The Truth" complete and unalterable is impossible to man? And would not this make us, in hard fact, members one of another? For not only must our thoughts be built on the concepts of those who have gone before us, but none can afford to ignore or deny the real percepts of his brother man, and it would be in the harmonization of all the percepts of specialists that must be sought our nearest approach to the ideal truth, that vast round of which our individual knowledges here are the "broken arcs." And is not this the reasonable basis for the extremest toleration, and for that sympathy without which we can never understand one another?

If this is a fair statement of the case, the question what to teach is simplified, at the same time that it derives a new importance. Our instruction, aiming at teaching how to think, not what to think, may deal with any kind of subject matter, for any may be made the means for that mental discipline which we are agreed is of primary importance. It is not a vital matter what "subjects" may be selected, and this may give the reason why so many and various curricula have been extolled on account of the excellent results obtained with each. But there is a certain range of information which it is considered to pertain to a liberal education, and this has by common consent been embodied in the program of schools in all civilized countries. The subjects of instruction may be classified as below, following Professor Rein:—

EDUCATIVE INSTRUCTION.

PERTAINING TO

A.—The Life of Man.			*B.*—The Life of Nature.		
Historical-Humanistic Branches.			*Branches of Natural Science.*		
I.	II.	III.	I.	II.	III.
Instruction in training the disposition.	**Art Instruction.**	**Language Instruction.**	**Natural Science.**	**Physical Science.**	**Mathematics.**
1. Biblical and Ecclesiastical history. 2. Profane history. 3. Literature, whether in mother tongue, or classical, or modern languages.	1. Drawing. 2. Modelling. 3. Music. 4. Singing.	1. Mother tongue. 2. Modern languages. 3. Classical languages.	1. Geography. 2. Botany. 3. Biology.	1. Chemistry. 2. Physics, Sound, Heat, Optics, Electricity, Magnetism, &c.	Arithmetic, Geometry, Algebra, Trigonometry, Dynamics, Statics, &c.

It is now fully admitted that Group *A.* and Group *B.* are both indispensable in the scheme of a liberal education, but opinions differ widely as to their relative value, and which subjects should be chosen to represent the minor groups is still hotly debated. Group *A.* has received the strong support of those who, from their insistence on the scholarly and literary ideal of the perfect use of language which makes literary form, have been called Formalists; and group *B.* is the mainstay of those who have been named Realists by reason of the importance they give to what they term real knowledge. The first are chiefly represented by classical men, who set supreme store by the educative influence of the sub-departments *A.* III. 3, and *A.* I. 3, combined with a moderate knowledge of *B.* III. The most numerous representatives of the Realists are to be found among parents, who have discovered that the constant working towards a literary ideal ends in the large mass of non-literary boys leaving school with next to no knowledge, and often with a strong distaste for it, and without habits of observation, attention, or reasoning, after an education costing, first and last, perhaps £1,200. The persistent demand of such parents has led to reluctant concessions from classical head-masters in the shape of "modern sides" and science classes, and their vague demands have been put into shape and logical consistency by Herbert Spencer, in his work on *Education* published in 1878, and translated into nearly every European and many Asiatic languages, and read by all who are interested in the principles of Education.

Unfortunately, both the Formalist and the Realist schoolmaster each despises the other's teaching. The contempt of the classical man for the 'ologies, which mean to him but doubtful theories built on the shifting sands of speculation, because he has never cared to know the permanent premises which are held together by an admittedly temporary theory, is retorted *mutato nomine* by the teacher of physics, who has not gone deeply enough into literature to be sensible of its power. A public school head-master not long since told me that 'the craze for modern education was rapidly dying out,' and he confidently anticipated a return to sound classical methods when the present fads had had their day. 'A classical man is' said he, 'an educated man, and can therefore turn his hand to anything should his original walk in life fail him.' There is a certain type of schoolmaster whom the didactic habit has made less amenable to argument than the master of twenty legions, but, though I said little, I could not but contrast this statement with the sad experience of hundreds of "educated men" who are reduced to small clerkships and petty tutorial work on starvation wages at home, and to shepherding in the Colonies and ranching in America, and also with the inroads on our trade made by nations like Germany and the United States, whose system of education deals more with applied science than does our own.

6. The objections of such men are easy to analyze. Knowing nothing of the fruitful labours of educational pioneers like Froebel, Herbart, and Rein, whose educational methods have compelled the reluctant homage of French imitation by sheer merit in deliberate view of the English no-system of secondary education,* ignorant of the very existence of the methods of applied psychology; looking upon Ruskin as a fanatic and Matthew Arnold as a fanciful enthusiast, and regarding Herbert Spencer from the Pharisaic point of view of a scornful orthodoxy,—they know no teaching but the ordinary school didactic. Taught as 'sciences' usually are, not by training the faculties of observation and inference, but as 'knowledge,' they are indeed of little use compared with the educative effect of literature. In Chapter IV. will be found the clue to this part of the subject, that Nature studies must be taught so as to give a stock of simple original percepts and concepts, and to bring out the powers of observation and reasoning.

That percepts reached through the senses are at the root of our knowledge of words, and determine our whole use of language, has already been advanced; that these experiences of the senses are also indicated by Nature as specially suitable to the early years, will appear from child-study. A child's earliest instincts are to touch, taste, and handle the things about it. It thus stores its mind with percepts. These percepts it combines into concepts and represents them by words, which by association with other words serve to form fuller concepts, and these again furnish material for the figurative use of language. Thus whiteness, acridity, solubility, and crystalline structure, make up the concept denoted by the word 'salt.' Later comes the truths concerning its antiseptic properties; later still the understanding of such a phrase as "Ye are the salt of the earth." The importance of this must be the excuse for reiteration. As the faculty of observation is the first developed in the child, who is ceaselessly enquiring concerning the objects presented to its senses, it is fitting that those studies which deal with these objects should take the first, though not necessarily the most important, place in the mental training. As language is based on material percepts, and Imagination is the mental rearrangement of remembered percepts and concepts, the mind must be stocked with these before it can deal with the abstract ideas expressed by words. It is for this reason that the natural and physical sciences should precede connected history, which must be taught mainly by words, and requires a high degree of imagination and power of abstraction before it can be understood. Imagination originates nothing, it only recombines; and the reason for the dead failure of so much historical teaching is that it appeals to the unstocked imagination. Connected history is in fact a psychic science, and though it may be more important than the study of physics—nay, because it is more important—it must come later, when the mind has a greater content and more power of abstraction.

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* Athletics apart, of course. The French reformers, who rightly traced the collapse of 1869-70 to the better education of their foes, carefully analyzed the educational systems of Europe in order to improve their own. They have adopted German teaching and English sports!!

Nor, as is often contended, can the knowledge on which concepts are built be gained in later life from mere reading. Accurate physical concepts cannot be gained from books; actual contact with the things is necessary. The student who reads chemistry enough to pass an examination by sheer power of memory, but has never handled a gas or conducted an analysis, or has done so too seldom for his recollection to run naturally to his experiences rather than to his books, knows next to nothing. His memory knowledge is not of definite concepts, but of more or less inaccurate analogies built up out of such experiences as he has had. It is the same with heat, optics, acoustics, electricity, &c., which are not abstruse 'ologies, but accurate common-sense about the effect of forces in constant play around us. Wherefore it is essential that, if we are to know anything of these, we must learn them while the method of instruction can be experimental.

7. The habit of accurate observation, which is the main educative value of science, is of all but priceless worth, but it is not the highest aim of education. It is perhaps because this word has been and is still so often used in the limited sense of instruction, that it has come to bear a narrower meaning than the drawing out of the faculties of the whole man. The existence of the term 'culture' is evidence to this fact. "Culture," said Huxley, "certainly means something quite different from learning or technical skill. It implies the possession of an ideal, and the habit of critically estimating the value of things by a theoretic standard." Matthew Arnold regards it as familiarity with "the best that has been said and thought in the world;" and literature, he said, contains the materials which suffice for such knowledge. The power of intellect and knowledge do not alone suffice for the building up of human life; there is also the sense of beauty which forms our ideals, physical and moral, and the sense of Right, which determines conduct. The more copious the materials with which the progress of science presents us, the greater the need for the co-ordinating power which can duly use them, and this power can only come from the æsthetical and the ethical side of human nature. Literature is the expression of man as a social being. In it he gives voice to those hopes and fears and aspirations which awake responsive chords in other minds and hearts, arousing the nature which makes the whole world kin. Professor Jebb, in his inaugural address to the Teachers' Guild in January, 1896, has spoken so well in behalf of the educative influence of literature, and its indispensable part in a liberal education, that his words may fitly be reproduced here. He reduces to two the objections entertained by some parents who are very keenly alive to

the imperfect knowledge of realities gained by their children at schools where the teaching is entirely humanistic, and are therefore inclined to go to the other extreme. First, that even granting that the best literature, besides exercising the reason, also touches the emotions and trains these, the mainsprings of human action, this is true not for everybody, not even for the average man, but only for those persons who have a natural susceptibility to poetry and eloquence, or in whom such susceptibility has been produced by an elaborate and refined training. Next, that even if the virtue of humane letters for people in general were admitted, it is impracticable to confer that benefit on school pupils whose time is to be largely occupied by subjects having a direct bearing on their future calling, and who are to go straight from school into the work of the world. We have then, he says, to show two things. "First, that the influence of humane letters can be felt by everyone who is not an idiot, and that it is, in the completest sense, a practical good. Secondly, that school pupils can be brought under this influence, even though their time is largely given to other studies.

"The feelings which good literature calls into activity are common to all mankind. They are such as are awakened by noble thoughts or sentiments, clearly and beautifully expressed; by the contemplation of great actions and character; by following the varied development of human life, not only as an evolution in which we look for laws, but also as a drama full of interests which intimately concern us: a drama, too, from which surges

> the Virgilian cry,
> The sense of tears in mortal things.

Such an exercise of the feelings and the imagination brings with it a general cultivation of the understanding, one result of which is a more intelligent sympathy with our fellow-creatures. John Stuart Mill, in his Autobiography, justly comments on the advantage, in regard to a general cultivation of the understanding, which even the least educated classes of several Continental countries derive from the habitual exercise of the feelings; contrasting it with the disadvantage suffered in this respect by even the so-called educated in England, where the national manners severely repress the manifestation of feeling. And, as it is true that unpoetic natures are those which specially require poetic cultivation, so it may be said that an undemonstrative people can least dispense, in its education, with studies which exercise the feelings; for it would be fallacious to suppose, as in England we are perhaps too prone to do, that our undemonstrative habit is a sure index of capacity for deep and genuine feeling; the feelings, like other parts of us, need to be educated; if they are exercised on unworthy things, they are perverted; if not exercised at all, they are numbed or killed. The eminent thinker whom I have just named had to learn that lesson by a trying experience: Mill's intellectual education, beginning in childhood, had, as he says, made precocious and premature analysis the inveterate habit of his mind; and while still a youth—only seventeen—he fell into what he calls 'a dry heavy dejection,' which he could not at first explain to himself—in Coleridge's words, 'A grief without a pang, void, dark, and drear.' But presently he came to understand what was amiss with him; he comprehended, for the first time, the place of poetry in human culture, as a means of educating the feelings: he turned to poetry for mental relief, and in Wordsworth he found a physician. 'I had now learned by experience,' he says, 'that the passive susceptibilities needed to be cultivated as well as the active capacities, and required to be nourished and enriched, as well as guided.'

"Probably the practical man, whose conversion we are supposed to be attempting, would admit the force of this example as a support of the proposition that the good which humane studies can effect is not limited to the type of mind which is by nature exceptionally congenial to them, or which has been exceptionally trained for them; for here was a mind, greatly gifted, indeed, but not specially for *them*, a mind which had been (one might say) sedulously averted from their distinctive influences, those of poetry and eloquence; and which, nevertheless, when it fell sick, found its medicine in them, precisely because they recalled it, through poetry, to humanity, soothing it by a human sense of pleasure in natural beauty, bracing it by sympathy with human affections and with human destiny. In the everyday work of the world, we all know how desirable it is that a man should have some power of understanding people unlike himself; should be able to place himself at a point of view which is not his own; should be capable of making due allowance for shortcomings; should possess that higher kind of tact which springs from intelligent good feeling, and does not break with sincerity; should combine generous aims and high standards with a sense of proportion, and should look at things, as the Greeks said, ἀνθρωπίνως, with a sober perception of what is reasonable and practicable. No education that ever has been, or ever will be, devised could guarantee these qualities. But it is a great thing if it can justly be said in favour of any kind of education that its influence, when properly received into the mind, sets up a current which strongly makes for those qualities, rendering it immeasurably more probable than it would otherwise be that they will be developed in the character, at least to some extent. This is the merit—I am anxious not to overstate it—which, as experience shows, may be claimed for the humane studies in relation to practical life generally.

"Then, apart from the practical work of life, there are two other grounds, also practical, on which humane studies may be recommended. They tend to good citizenship, by enlarging the mental horizon, by stimulating the interest in history, and by quickening the sense of civic rights and duties. Again, it is most important, in an age like this, that all workers should cultivate the art of true recreation. A disciple of humane letters will not necessarily find his chosen recreation in the same studies, but he is likely to find it in something, at least, which engages and pleases the intelligence. There is no surer sign of an uncultivated mind—which may, of course, go along with special knowledge and with natural ability, just as easily as with wealth—than an incapacity for the higher order of pleasures. It is the want of real cultivation which dooms people to the amusements that do not amuse.

"The general result to be aimed at here is well summed up in some words of Professor Henry Sidgwick, which will have the more weight as coming from one who is entirely devoid of prejudice in favour of the ancient humanities: they occur, indeed, in his essay on '*The Theory of a Classical Education*,' where he has been pointing out that the classics often failed to be effective as a literary education. 'Let us demand,' he says, 'that all boys, whatever be their special bent and destination, be really taught literature: so that, as far as is possible, they may learn to enjoy intelligently poetry and eloquence; that their interest in history may be awakened, stimulated, guided; that their views and sympathies may be enlarged and expanded by apprehending noble, subtle, and profound thoughts, refined and lofty feelings; that some comprehension of the varied development of human nature may ever after abide with them, the source and essence of a truly humanizing culture. Thus, in the prosecution of their special study or function, while their energy will be even stimulated, their views and aims will be more intelligent, more central; and, therefore, their work, if less absorbing, not less effective.'"

CHAPTER IV

MORAL EDUCATION

"Religion is use; Christianity is a life; and the virtues do not exist at all except in so far as they are being translated into daily and hourly practice."

1. As we look out on the world and reflect on what we chiefly desire in those with whom we are brought into close contact and in ourselves, we cannot but recognise that while ability counts for much, character counts for more. In the worker is needed energy, perseverance, truthfulness; in the citizen, public spirit, sobriety, rectitude, courtesy; in the parent, patience, insight, wisdom, love, in the duties of daily life; and the man or woman who fulfils these duties does thereby their duty to GOD. All these are moral qualities. How are they to be fostered? At the risk of seeming pedantry it is well to insist that these are not things, entities wherewith the mental organism can be dosed, nor truths which can be didactically taught; they are names for spiritual functions, and no exactitude is wasted which sets us thinking what is the nature of the internal function which precedes the external actions manifest as morality.

That the best physical growth results from placing an organism in the best conditions will be freely admitted, and that the best conditions are those which conform to the inner nature and normal development of that organism will not be denied. All forcing is injurious to healthy development; we cannot hurry evolution without paying the penalty. The same truth governs mental growth; precocity is unhealthy; forcing gives early fruit, but ruins the plant. When the question is of moral growth, we are apt completely to change our method of thought. Not only do we seek to command the growth of perception by didactic teaching, but we assume that innocence is the essentially moral state, and stainlessness its synonym. Our educational theories in this respect seem to be founded on the literalization of a symbolism. We regard the child as typical of the state of innocence, and endeavour to preserve the paradise of its mind by excluding evil; or, recognizing that this is impossible, we seek to suppress the evil—innate or acquired. Our educational theory is, in fact, founded on the supposed positive nature of evil; and here, again, an apparently scholastic and recondite idea must be faced and reasoned out without cowardly or indolent fears. This is no vain academic question, but a very vital one; for it is obvious that our leading educational idea must widely differ according as we think of evil as something to be repressed, or as being but a name for the want of certain faculties. The old symbolism, however true and beautiful in certain aspects, is insufficient as a basis for a philosophy of education, and a better formulation of the facts must be found.

It has been advanced that the cosmic process has resulted in a being with ethical perceptions, and that his further development must depend on the steady growth of these perceptions. This being calls that part of his environment and of his heredity which has served its purpose and is now adverse to this moral development,—EVIL.

That there should be any divergence on this momentous point is remarkable. Philosophers, biologists, and Fathers of the Church are at one. All great thinkers, from the ancient Vedic writers to Plato, Spinoza, Berkeley, Leibnitz and Kant, are in agreement, that evil in man is the want of power to see truly and to will firmly. St. Augustine speaks of this as the grand discovery which cleared up so many of his difficulties. "As yet I knew not that evil was nothing but the privation of good up to the point at which a thing ceases altogether to be."—(*Conf.* III. vii.) All that is done in the world, says the man of science, is the result of energy wisely or unwisely directed, and even in the case of the worst acts the misdirected energy is not evil, but only the IGNORANCE, mental or moral, that misdirects. Evil is best presented by that symbol of Darkness—the absence of Light, which has always been felt to have a peculiar fitness. But, misled by the appearances of things, we turn symbols into actualities. Considering evil as a positive thing to be banned, we come to look on a colourless innocence as the perfection of morality. We still prefer the negative command "Thou shalt not . . . . ," to the positive ordinance DO—unto others as ye would they should do unto you—be just, kindly, sympathetic, helpful. The individualist theory thus half formed tends to separate the man from his fellows, the unit from the organism, and to produce a moral scheme out of harmony with social life, and powerless except over those who are already inclined to well-doing.

But the most lovable people are not the most immaculate, and in work-a-day life men and women are valued for the work they have done and can do, not for what they have abstained from doing. When a youth who has been trained to think of all right conduct as abstention from wrong-doing and of all morality as the avoidance of tempting pleasure, finds out that this standard is not the measure of esteem among his fellows, the whole foundations of his theory of life are apt to be shaken; and as the human being is logical in spite of himself, one of two tendencies is observable: either to reject morality as a set of artificial rules concerning which he may think as he likes, provided that he outwardly conform to them; or, on the other hand, to supplement one artifice by another, and to think of himself as being "of the church," and of others, though greater and worthier, as "of the world," a temper which perhaps above all others makes for pharisaical delusion. Moral education, then, is not the preservation of innocence, but the gaining of wisdom. Stainlessness may, often will, ultimately must, be the result; but a hundred tales of current literature are evidence that men are coming to see, that not the one whose past is blameless is necessarily the moral man or woman, but he or she who has learned, often by error, always by pain, how to govern self wisely. This wise direction of intellect, which in its turn directs energy, is the moral purpose of life. The scheme of the universe is not such a lop-sided affair that a man need set aside a portion of his life to preparing for another: the life here is the preparation for the life whose days eternally go on, for moral life can never be anything but the wise direction of the powers at its disposal.

2. The truths which govern moral training may be stated as follows:—

That the wise direction of the daily stock of energy is morality.

That each mental and physical action renders its repetition easier, and thus makes what is called a habit.

That this daily stock being strictly limited, wise habits of expenditure preclude unwise habits.

That the body responds to habit, and thus becomes a machine for the conversion of energy into wise thought and action, and this is "character."

It is the task of the educator to direct the growing energies in his charge so that these habits of body, mind, and spirit be formed which will ensure wise self-direction in due time; and discarding the repressive symbolism as the less fruitful of the two in this aspect, education becomes no conflict with evil, but the drawing out of the Divine germ of good on the physical, mental, and moral planes, ultimately resulting in strength, knowledge, and that highest direction of will power which, whether it be directed upon a cause or a person, is called Love. These qualities are the modes of function which mark all the acts of a high character; and this is not to be looked for early in the life history. If moral growth is an evolution, the somewhat startling but inevitable corollary is, that the more defective stages are the earlier ones. The beautiful moral health of a child whose surroundings have been favourable, its readiness to trust and believe, its natural shrinking from the coarse, the mean, and the impure, must not blind us to its extreme frailty before its own desires and its inability to discriminate between the good and the bad, nor to the hideous results in the case of children who have grown up in bad environments; children whose callous cruelty, heartlessness, obscenity, and dirt, show an even greater latent aptitude for wrong-doing.

These twin facts are the indication that the teacher must look to environment, not to didactics, which hold a very minor place among the forces of that environment. At the outset it must be recalled that the distinction between physical, mental, and moral training is scarcely more than an artificial one for convenience of analysis. Every act has a bearing in each of these directions; all that can truly be said is that some have specially mental and some specially moral bearings. Nine-tenths of life is made up of little things, but the same principles work in them as in great ones; it is the same gravitation which gives form and course to a raindrop, and its orbit to a planet. It is the same temper of justice and love which prompts honour of a cleverer or stronger playmate, or protection of the rights of a weaker one as makes the social polity of that *Civitas Dei* wherein enters naught that offends. It is in little things that character is formed. Quite useless will be the attempt to impress of a Sunday the magnificent lesson of the xiii. chapter of Corinthians, if love is not illustrated by constant instances of kindliness, forbearance, self-effacement, and indifference to comfort that every day demands. For this reason it was that Dr. Channing well said that a child, compelled for six hours a day to see the countenance and hear the voice of a fretful, unkind, hard, or passionate teacher, is placed in a school of vice. A heroic character is built of little acts, as a great cathedral is built of little stones; and the spirit which has been trained to act justly in the little things of every day, and give ready help to another's trouble or pain, will not fail to apprehend the responsibilities of wealth, nor blench when circumstances call for heroism. Many a Victoria Cross has been won in the school playground; the habits are formed there, and when the great opportunity comes, the heroic man or woman simply acts according to the use that has bred a nature in them.

The first conditions of a healthy moral environment are hygienic. Moral growth is a unity, and wholesome physical conditions are the first necessity. What these are has already been stated: suitable food at regular hours—no "tuck"—self-restraint till those hours—proper care of the offices of nature—personal cleanliness—plenty of exercise—not more than four-and-a-half hours of brain work—and at least nine clear hours of sleep; these are the foundation for all that is to follow, for the strong and healthy body is the foundation both of understanding and of morality.

The moral aspect of the mental environment is not less important. Mentally the highest moral quality is truthfulness, in its full meaning of the honesty which will have nothing to conceal, and the candour which refuses all subterfuge. This is a habit applied to all acts, not an act in itself; and, as the quotation prefixed to this chapter reminds us, it is existent only so far as it is expressed in all the acts of a life. Now, a little healthy observation and introspection will convince most of us that relatively little of the falsehood we meet with in the world comes from wilful attempts to deceive, but much from inaccuracy which is self-satisfied with loose statements, and from indolence and bias which refuse to review the grounds for those statements. The mental habit of close observation, fair inference, and accurate statement or vivid realization, is the foundation for what may be called intellectual morality. This is fostered by the method of teaching which insists on this order, and by a discipline which secures military smartness of mind and body. Unpunctuality, carelessness in dress, lounging attitudes in class, bad demeanour, false shame, slipshod English, and inaccurate replies (corrected by the master, but not by the child), are the original causes of inaccuracy, and in the long run, of indifference to truth.

3. "We live," says Wordsworth, alluding to our moral growth, "by admiration, hope, and love, and even as these are well and wisely fixed, in dignity of being we ascend." In other words, we live by the ideals which we form from those persons and writings with which we are brought into contact. Every ideal is a product of the moral sense, which selects for imitation such truths as it specially admires. At the present time these ideals are a curious medley from very different natures and widely divided times. We dimly see that every real human perception has its place in the perfect round of Truth, but we have not yet worked out any system, and our inconsistencies are perhaps partly due to a large-hearted eclecticism, which would assimilate all that it meets with of beautiful and true in all the nations which make up MAN.

To the Semitic race belongs the crown of preserving undimmed through the centuries the great idea of the Unity of God. This is still the watchword of Judaism—to proclaim the Unity. The ancient Vedic religion, which four thousand years ago had attained to, or preserved from a still remoter past, the sublime truth of the One Life of the universe, was overlaid by those doctrines of personal emanations which, though making the divine attributes more comprehensible to the wise, obscured the central principle to the vulgar: the nature gods both in classic and in northern lands became so wholly human as to cease to be in any true sense divine; and if the Jew lowered the idea of the Father of men to that of a tribal God and a personal protector, his anthropomorphism seldom forgot that Righteousness is the condition of Divine favour even to the chosen race, a conception so far above that of the graceful criminals of Olympus and the stalwart robbers of Valhalla, as to thoroughly warrant the antithesis between the One True God and the idols of the heathen.

Philosophy and Law have come to us by direct descent from Greece and Rome. The imperial city, potent in administration, excelling in discipline, the originator of the military art and of a fixed system of jurisprudence, was dominated in literature by her own captive. Greek art and Greek philosophy formed the Roman literature. All distinctively Roman art lay in the practical direction of aqueducts and roads; her genius was the deity of engineering, of discipline, and government, whether of nature or of man. The Roman Church perpetuated all these qualities; a Roman priest succeeded to the throne of the Cæsars, and a Roman apostolate designed and perfected the ecclesiastical system which converted Europe, and still stands as the impersonation of Authority.

The scarcely less noble gift of the Teutonic race to mankind has been the ideal of Liberty. Free institutions, combined with the instinct of conquest and great cohesiveness against all outside the nation, made the hardy warriors who bequeathed the Roman world to their successors; and though self-preservation compelled them to learn discipline, and vanquished Rome in her turn compelled their homage to the greatness of her civilization, and obtained the adoption of her laws and her religion; yet through all history it may be traced that, while the Latins have stood for the great principle of Authority and Law, the Teutons have maintained the no less necessary principle of freedom in Church and State, and the right of men to revise the dicta of Authority.

Besides these great national inheritances there is another ideal, whose moral splendour is the seal of its immortality and the self-evident warrant of its truth. The Church has persistently kept before the eyes of men the lovely ideal of a life dead to the things of sense. Passing by the allurements of dominion, of sensuous beauty, and of the pride of intellect, she set before herself the Vision of the crowned Humility, and found her ideal not in the life won, but in the life laid down. If this ideal has sometimes been misinterpreted as the negative whiteness of the cloister rather than the strength of that Character which has dominated the West, and still forces itself on the world, in it but not of it, none the less has the Church preserved, through centuries of war and rapine, the ideal of God manifest in man by Righteousness more than by strength or by knowledge.

The ideals of the warrior Teuton and the Christian Church were curiously blended in the pattern of Feudalism. The soldier-saint received his arms from the Church to wield them in defence of the oppressed, and in support of Church and King. *Sans peur et sans reproche*, holding life as dross compared with honour, safety as nothing compared with loyalty, and courtesy as second only to courage, this ideal also will never pass away. How far it was actually realized in Norman freebooters, in the mirror of chivalry who ordered the massacre of Limoges, in the great order which was dissolved in A.D. 1307, or in the military prelates of the XII., XIII., XIV., and XV. centuries, it is perhaps as well for an admirer of Feudalism not to examine too closely; let it suffice that the idea of Loyalty was the highest conception of Feudalism, the cheerful devotion of goods, person, and life, to the visible representatives of GOD in Church and State.

On this the XVI. century engrafted the ideal of Culture. The devoir of the knight was to be brave, courteous, and loyal; the Renascence added the duty and the privilege of knowledge. Literary refinement as well as courtesy of demeanour became the badge of the gentleman, and this refinement was based on the beauties of classical literature and the thoughts of classical antiquity, then the only mine of philosophy and model of style.

From this arose the moral ideal which for the last three centuries has dominated our educational scheme; and by the enthusiasm and generosity of founders, who saw how worthily their wealth might be used, this has received more aid than any of its predecessors since the Greek gymnasia. The aim of the public schools and the universities was to turn out "the scholar and the gentleman," and in the last century no other type was required. Every statesman was expected to be a man of letters; a quotation from Juvenal or Horace was held in the House of Commons to clinch an argument, and a false quantity was thought vastly more heinous than ignorance of the very locality of those possessions our fleets were despatched to defend.

Our public schools still give us many gentlemen and a few scholars, unheeding of the fact that the ideal is an obsolete one. For if the gentleman in the knightly sense of that much abused word can never be out of date, there are but few places for "the scholar and the gentleman" in the world of to-day. The demand is for men who can deal ably and vigorously with things rather than elegantly with words, for that "directive power" which the sturdy sense of the growing American nation has seen to be the great present need, one which their founders are lavishing their wealth to endow their country with, while we plod along the ruts of an obsolete scholasticism. The growing need is for men who can be religious without being narrow-minded, obedient to authority because understanding whereon authority rests, free while reverencing Law, self-disciplined without asceticism, with a culture not limited by books, and above all, trained in habits of exact thought, and therefore able to use the mass of material which is now presented to us. Such men are needed to understand and direct the enormous forces of production and the vast possibilities of carriage which modern engineering skill has placed at the service of man; who can perceive the possibilities latent in the huge machinery of commerce, transport, and finance which have gone far to make the world one unit; who can leave the narrow grooves of tradition and develop the past without despising it, and form a new ideal worthy of the vast possibilities of the present age.

4. Each of these past ideals arose from a certain unity of conception of the purpose of life, which is the intellectual warrant for a system of morality. Each was adapted to the circumstances of the time. The youths of Greece were trained in the arts of geometry, music, and rhetoric, and in martial and physical exercises, all of which were to them the serious business of life. The page was bred in the accomplishments and devoir of a knight, and looked forward to putting his ideals into practice in the real world; the burgher's training was identified with his city; each knew the place he had to fill, and aimed at filling it worthily. To-day the school is almost entirely severed from life. So far from being anxious to put into practice what has been learned at school, many, perhaps most, boys would gladly continue their school life, and are pushed into careers by the compulsion of circumstances rather than from any training or aptitude. Our unpractical mediævalism has turned nearly the whole of our boys' ambition to athletics, and it is curious evidence of the power of natural selective law that at our public schools the boys' ideal has dominated that of the masters. Only a small minority of boys pass through the sixth and become scholars; the crammer is an accepted fact, and the boy who takes up Latin and Greek at any public examination must go to him to be taught, in a last year of hard cram, even those classics which have been the

main subject of his instruction for the whole of his school life.

That this picture is not overdrawn the following words by the Head-master of Haileybury will support:—

> "Tommy and Jack leave home and begin their scholastic career in Latin, History, Mathematics, a little Science, and the Bible. For a period of twelve weeks or so they lead a life full of happiness and healthy occupation, but strangely interrupted by certain lengthy and irksome formalities, which necessitate their sitting still and listening to an adult talking on topics removed by an almost infinite distance from their natural life and its surroundings; a medley of information about forms of speech which have not been heard since the Saxons came to England, about towns which perished 2,000 years ago, as well as odd facts about the Danish steelyard and coral islands in the Pacific. Once, or perhaps twice, a week, taught by the same man and in the same tone of voice, come stories from the Old Testament, and comments on a few verses of St. Matthew's Gospel. . . . . It is then, with a sense of novelty akin to bewilderment, that the two boys begin their studies at school; but being active little fellows, they give their energies to whatever is set before them, strange farrago though it be. Moreover, they learn that, for some wholly unscrutable reason, unless they imbibe some of this information so as to be able to reproduce it after a few weeks on paper, they get 'dropped on to,' that is, 'jawed' at school, and forbidden apple-tart at home. So they 'work'; they struggle to retain the farrago for the desired required time, and soon discover that if they subsequently forget all about it nobody seems to mind. . . . . As soon as the holidays begin, the farrago talk ceases to disturb the natural course of things. . . . . The process of forgetting is rapid and victorious."—*Mothers and Sons*, p. 49.

But if the average public schoolboy leaves with little more than a knowledge of "baby Latin" and no literary ideals, he has an ideal of his own, mainly derived from the playground and the school discipline. Strength, courage, self-assertion, truthfulness, endurance, habits of obedience and of authority, devotion to the school, are all so specially the result of our public school system, that one would think that schooling had no other purpose. It is a boy's ideal, and as such it is of course quite wanting in consistency and refinement; the manly, vigorous, pushing, competitive qualities are not balanced by more humanizing tendencies; the idea of work is entirely book work, "got up" not for its own sake, but for examinations, and the musical and artistic side of human nature is neglected, as also is manual skill; and this is quite as true in some schools where a carpenter's shop is provided as in others, for the workshop is usually treated not as a part of the school work, but as a concession to "modern fads."

The inconsistencies of thought which belong to a transitional period are well summarized by Jean Paul Richter when he says:—"The end desired must be known before the way. All means or arts of education will be, in the first instance, determined by the ideal or archetype we entertain of it. But there floats before parents, instead of one archetype, a whole picture cabinet of ideals, which they impart bit by bit, and tattoo into their children. If the secret variances of a large class of ordinary fathers were brought to light and laid down as a plan of studies . . . . for a moral education, they would run somewhat after this fashion. In the first hour pure morality must be read to the child, either by myself or the tutor; in the second, mixed morality, or that which may be applied to one's own advantage; in the third, 'do you not see that your father does so and so?' in the fourth, 'you are little, and this is only fit for grown-up people;' in the fifth, 'the chief matter is that you should succeed in the world;' in the sixth, 'not the temporary, but the eternal, determines the worth of a man;' in the seventh, 'therefore, rather suffer injustice and be kind;' in the eighth, 'but defend yourself bravely if any attack you;' in the ninth, 'do not make such a noise, dear child;' in the tenth, 'a boy must not sit so quiet;' in the eleventh, 'you must obey your parents better;' in the twelfth, 'and educate yourself.'"

The effect of this kind of moral instruction given to a child thrown into a society where the highest places are gained by successful competition is obvious, and its hopeless inconsistency is added to by an inversion parallel to the mental inversion which flings its formulation at a growing mind—the founding of moral ideals on theology, and not on perception. But is this necessary? If moral growth, like other human development, is an evolution, the evolving function must be innate. No environment can produce the germ itself. And it will be found that this is so. The test of high character is the ability to discern clearly the right between different courses of action, and to will accordingly; and right action is seldom presented as a sharply defined choice between the obviously good and the obviously bad. Life is not so simple. No impulse of human nature is wholly bad, and every virtue may be exaggerated into a vice. The moral life is, in fact, one of balanced interaction between various functions. Virtue, said Aristotle, is a mean between extremes of conduct; such a mean, he found it necessary to add, as a wise man would choose. In other words, right conduct is a matter of perception and will. High character can only exist in those persons in whom these faculties are developed, and these faculties are the exercise of special innate senses analogous to those of the physical nervous system. The sensory powers of the moral organism are classified by the German psychologists as the sense of Beauty, the sense of Right, and the sense of the Infinite. The motor power is the ability to act from internal motive, ordinarily called the power of willing. To the interaction of these may be traced all our strictly moral qualities; to these also the primary perceptions of the child may be referred, and these will now be examined in rather more detail.

5. THE SENSE OF BEAUTY.—Usually the first thing that attracts savages and very young children is bright colour. Civilization begins, as Carlyle assures us, with decoration; and decoration almost invariably takes the form of paint. Woad-stained Britons, tattooed Maoris, the bedaubed Indians of South, and the feather-bedizened braves of North America, all show the earliest æsthetic instinct in this way. The colours chosen are almost always primaries; white, black,

red, blue, yellow, are the favourites, no doubt because of the strong physiological sensations they awaken. Advancing civilization blends these to form secondaries; later still are developed the preferences for tints and half tones over the cruder blues, scarlets, and greens; delicate tertiary shades of colour are produced, and the sense is educated to the point that harmonies and suitably blended contrasts of colour give more pleasure than any simple tints. This fact is due to the nature of the retinal nerves: a mass of red tends to produce its complementary green on adjoining portions of the retina, and if this tendency is counteracted by another colour impression harmonious to the first, the result of the two impressions on the educated retinal tract is a sense of discomfort. Thus the feeling of contrast and harmony is developed by the physiological perception of complementary colour. Last comes the full sense of Beauty in this relation, the artistic balance of colour and its relative treatment. These stages are passed through by individuals as well as by nations, and the natural and historical processes each shed light on the other.

So with sound. Early music, and that which pleases the young, is always mere tune. "Yankee Doodle," "Pop goes the Weasel," and such-like, are the delights of the nursery; and the extraordinary vogue of music hall refrains, not to speak of the alacrity which succeeds well-bred boredom in the concert-room with the opening bars of a comic interlude, might almost cause a suspicion that only a minority of the human race ever pass this stage! A later development is the power of appreciation of the sad sentiment which is conveyed by the somewhat wailing tones of ballad music, then rhythm, expression and harmony, and lastly, the sense of musical proportion and relation, that balance which is at the root of all art and makes it a moral training.

So with form. The architecture of early races impresses by its massiveness. The Pyramids, the walls of Tiryns, the stupas of ancient India, all depend for effect on their size.

First comes the principle of the wall and architrave, then that of the arch and column ; and the strength which comes of perfect symmetry is later than the strength of bulk. It is size which dominates children's earliest ideas of form ; notions of grace and artistic proportion come much later.

In all these the ideas finally developed are those of proportion, harmony, and interdependence, and the perception of these is the trained function of the sense of Beauty. When this point has been reached, the percepts gained can serve as metaphor for the intellectually or morally beautiful. It is to this point that the æsthetic sense should be led.

The power of first impressions, and of those things on which the eye constantly rests, can hardly be overrated. Let the home be artistic ; not the " Japanese fan " kind of art, but that which comes of simplicity of form and well-chosen colour. Our English middle-class homes sin flagrantly against both simplicity and art. How often does one not see a drawing-room smothered in knick-knacks, on none of which does the eye rest with any sense of pleasure. The ornaments chosen are often tasteless in themselves ; or, even if tasteful, they are scattered in such profusion that the ideas they might severally suggest are lost in the crowd of inharmonious impressions. Beauty depends largely on the suggestion of definite idea, but too often walls are overloaded with mirrors, brackets, and pictures, of no merit separately, and whose aggregate is chaos. The sense of beauty and fitness can hardly be cultivated in such rooms. Plain, well-designed furniture, for use, not for show, harmonious colouring, a statuette or two, three or four vases, and a few pictures of real merit (by no means necessarily originals or expensive copies) hung so that the eye may rest on them without distraction by other things, such should be the style of the living rooms. These will do their silent work, and will often be looked upon with the pleasure which is truly educative, by accustoming the eye to rest on beautiful form.

The same may be said of the school. The best art is simple, and furniture may be both strong and plain as well as beautiful. It is a libel on boys to say that they cannot appreciate civilized surroundings. They need not be young savages to make them manly, nor does effeminacy result from beauty or from sanitation, but from luxury and coddling. If the desire to use tools is suitably provided for, they hardly desire to cut their names on the desks, incredible as this may seem; and if the class-rooms are neatly distempered in plain flat tints, broken by panels and frieze, they have even been known to prefer this to ink stains. The class-room being in the charge of the class, and especially of the second boy, they may actually take a pride in its neatness!

The chief use of drawing is to cultivate accuracy of hand and eye, but accuracy and beauty of line, if not inseparable, can very easily be made so; and if it were not true that all human faculty is latent more or less in every individual, it would be marvellous how soon mere imitativeness passes into artistic perception both of form and colour.

Music is another greatly neglected means of training. How much our people would gain if glee-clubs, and part-singing, and orchestral music were as common with us as they are in Germany. How much healthy and refining pleasure would displace unworthy forms of amusement which do not really amuse. What a splendid band might be got up in every public school. The Greeks, whom we admire so much, and profess to copy in our education, made music a chief branch of instruction. Why should not we? The glee-club might be a formidable rival to the tap-room, and even the frequent after-dinner sleep of the British merchant might give place now and then to a musical evening. Music is unpopular in schools with the parents because it is an extra, and with the boys because it must be practised out of hours. There should be a music-room in every school, which can be used as a drawing-room for evening reunion as well as for its own proper purpose, a sufficiency of instruments in other places for practice, and the hours of practice allotted as regular parts of the school course.

Lastly, let it be remembered that the first and most constant music is gentleness of speech. Shouts at play, and noisy, merry laughter, are in place there ; but let the habit of quiet speech in the house be cultivated, and in the school-room let all explanations, orders, and rebukes be pitched in the low, clear voice in which command speaks even more effectively by manner than by word, and daily holds up the beauty of order, courtesy, and self-restraint in every-day matters.

6. THE SENSE OF RIGHT, like the sense of Beauty, is inborn, and this is not invalidated if considered as the result of perception of the actions which make for happiness. But the appeal to force, not as the last, but as the first means of persuasion, can only be justified on the reverse assumption. Curiously enough, we go from one extreme to the other, and the boy who was caned on Saturday for idleness (probably resulting from unintelligent instruction, by-the-bye) is preached at on Sunday from the assumption of his fully developed moral being. Child study here will enforce the same conclusion as in other branches, that the development of the child is a personal evolution, and repeats the evolution of the race. The elementary percept alike in that dawn of moral consciousness with which civilization begins, and of the particular consciousness of the child, is the sense of Justice. This is one of the strongest traits in quite young children, and to the teacher who would fain be guiltless of "offending one of these little ones," it must be a painful reflection how often this beautiful and delicate sense must be wounded by hasty words and acts, before it can become as obtuse and callous as we know it in ourselves.

Professor Earl Barnes has lately given the results of an enquiry into the views of punishment entertained by four thousand children from seven to sixteen. They were asked to describe from their own experience one punishment they felt to be just and one that they felt to be unjust, if any; and the results are interesting. Some of his conclusions are as follows:—"Justice is with children largely a matter of feeling [*i.e.*, of primary perception, not of reasoning]; they feel wronged, or justly dealt with, without much notion as to why [*i.e.*, they cannot formulate]. The majority of children look upon punishment as an atonement: they pay for crimes in suffering. They sometimes demand that they shall be excused when they could not help it, or when they did not know any better. In a just punishment they demand that they shall know the offence with which they are charged; that they shall not be punished for other people's crimes; that others implicated shall be treated exactly as they are treated; that no excessive or unusual punishment shall be administered. On the other hand, they accept corporal punishment when legally applied, the binding force of a law when duly promulgated, and the duty of obedience to constituted authority."

These ideas are so far in advance of their reasoning powers that better proof of the innate faculty could scarcely be desired. It is a curious commentary on the ways of adults that the first demand of the nursery Magna Charta should be to know the crimes for which sentence is passed! This fact implies much punishment for acts which jar on irritated nerves, but are by no means wrong in themselves. Another analysis of Professor Barnes' results shows the kinds of punishments inflicted. These are as under:—whipped, 1,174; indefinite, 631; confined, 622; scolded, 279; shaken, struck, or slapped, 240; lost a treat, 113; sent to bed, 110; miscellaneous, 93; bad marks, 60; extra tasks, 50; lost a meal, 36; made to correct the harm, 15. The last is an appalling figure. That only fifteen out of four thousand should have been made to correct the harm done is a truly terrible comment on the ways of parents and schoolmasters. Consequence, the one and only penalty of after life, the basis of civil law, the Divine method, the unalterable foundation of morality, figures at less than half per cent. in the statistics. This thing is not trifling; to the child it represents serious injustice, and goes to destroy the God-given sense. How much our punishments sin against justice can be exemplified by almost any case. Take, for instance, the frequent punishments for inattention in class. Medical men who have studied the subject are agreed that four-and-a-half to five hours represents the longest time for which children can well keep up their attention, and that this time should be broken up by intervals of rest. But we keep "boys poring over their books for a number of hours, which, as medical authorities tell us, involves a premature and dangerous forcing of the natural development of the brain, if their brains are really active during the whole of such hours; or which has the equally fatal result of stunting and deadening their faculties, if their brains are but half intent on their subject."—(*Reforms in Public Schools*, p. 54). Then a boy (having been sitting, moreover, on a flat board for two hours) fidgets and is lazy, and we punish him, generally by the further monstrosity of keeping him in to write impositions. Every real transgression can be punished by consequences connected with the act, among which consequences the supreme exercise of authority expressed by a good caning is the ultimate resource, far better than the foolish "humane" punishments; but not to be constantly appealed to, but rather to be held somewhat shameful, as showing insensibility to reason and good feeling. As to the use of the cane, I am convinced that it is sometimes needed, but not often. It is preposterous that an adult should be unable to discipline a class in accordance with healthy mental growth without constant resort to force. As a teacher myself, I say that those who find it so are not fit to teach; if the stick could reform, it would be their own shoulders that need it.

The trained sense of Justice will carry the teacher very far towards the practical ideal. The desire of Justice for self leads naturally to the compulsion of justice to others, and implies that corporate action which allows free play to the healthy activities of all. The wise school routine can be easily shown to be founded on justice, and not on whim, and those who offend against it to be violators of the primary basis of all society.

Christian Charity comes afterwards; it is the flower of which justice is the stem.

Truthfulness has already been spoken of, and the foundation of truthfulness is care in speech, that guarding of the lips which is neither a pedantic accuracy nor a monkish rule, but a practical reverence for truth in word. Beyond this, the public school system of making the school as far as possible self-governing, by its prefects and school committees, can scarcely be improved upon.

One thing more remains. If cleanliness is next to godliness, it is so by the transition from the physically to the morally cleanly. Boys and girls are brought up too much in ignorance of the meaning of moral cleanliness; the existing education ignores the world as it has pleased God to make it. All matters of sex are carefully hidden away as impure. Puberty, with its new and strange trials and its unknown impulses, comes on children and finds them without guidance. Here let there be no pretence, no concealment, no hypocrisy. It is chiefly for this reason that the study of botany is placed early on the program; the opportunity is given of associating reproduction with growth rather than with passion, of showing it in its supreme purity and real meaning, and thus stamping it with a set of associations which will be the true basis for the human aspect of the matter—the sacredness of a trust which gives the far-reaching, and, could we but see it, the truly awful responsibility of handing on the Image which we have received, improved or yet further degraded, according to our own lives.

Nor is this training of the sense of right suited for one sex only. What is needed is that the training of men and women alike be such as to develop high character, and this can be described in convertible terms for either sex. The human being should be healthy, active, brave, intelligent, truthful, honourable, clean in life, and kindly. We may leave it to nature to interpret these words, either in the masculine or in the feminine sense.

7. THE SENSE OF THE INFINITE—according to our analysis the last and greatest of the spiritual senses—is that sense which tells us of an encompassing GOD and of a moral purpose in the world. Its earliest dawn is manifest in the child's vague sense of wonder at the meaning and purpose of all it sees; and this should end in the realization of the universe as existing for the manifestation of Righteousness, by means of Intelligence, in material forms. Can this be other than a gradual process? Is it reasonable to expect to command such a perception by didactic teaching? Is it not the fact, that however true and valuable a system of theology may be, it is necessarily an attempt to express in words verities that transcend language and are properly shown forth in lives? Does it not, therefore, follow that the truer a theology, the less can it be brought down to a child's level without the use of language so crude as to falsify meaning? Surely Theology in its full, proper, and unsectarian sense is the attempt to formulate the world-theorem: it is the science which comprehends all others; its premises are the whole known facts of Nature, of history, and of the Divine law. What logic is there in presenting it, necessarily under the crudest language of Time and Sense, by quasi-exact definitions which must, in the very nature of things, be erroneous concepts to a child, and staking all upon an interpretation which must be shaken in after years? I confess that it seems to me mere cowardice for those parents who, through much heart-searching and pain, have come to see that literalism is at issue not merely with scientific theories, but with scientific facts, to leave their children to

wade unguided through the same slough. If the idea of an imperfect world evolving from the less to the more perfect type by the in-dwelling power of the Divine Spirit moulding all things to its own Image, with Evil as a misdirection slowly disappearing before the fuller manifestation of the power and orderliness of that Divine Spirit in human hearts and lives, is a higher ethical presentment than that of a perfect creation ruined by the act of one pair, of Omniscience repenting of having made man, and repairing the error by the sacrifice of the whole race but eight persons, only to be again defeated by the same family: if the one is in accord with all verifiable truth, and the other (taken as literal history) is not, then in the name of all honesty let us not hesitate to confess it to ourselves, nor fear to take the allegorical as allegorical. Minds in which the literalist "explanation" has become fixed can hardly believe that, to explain the narrative as symbolical of the spiritual laws which dominate matter and mould empires as a sculptor moulds clay, is not to explain it away. Not so the child. His purer perceptions are not shocked by being told that the Edenic story is a parable on all wrong-doing, for he has not yet come to think a single past event more important than an eternal law. This even commends itself to him as being more just than the idea of a curse on all for the fault of one, which not infrequently presents considerable difficulties, not always set at rest by an appeal to the duty of faith!

But religious instruction is not religion, and cannot be substituted for it. Our religion is our daily life as actually lived, how we translate our moral consciousness into action, and this is the real moral training of our children.

Let it be granted fully and freely that there is no ideal for us but Christianity. But Christ's teaching is a revelation of principles governing all the acts of life, not a series of "truths," which are but human formulations of what those principles may be held to imply. Why begin with the *formulation* here also?

Would it not give a surer standing ground in later life, and a keener sense of the meaning of Infinity, if we were to verify more often that behind every physical phenomenon there is a force, and that, though this force can be traced through many changes, its origin is unknown to the intellect, and thus to guard against the littleness of mind which deludes itself with the idea that to know a process is to understand its cause!

Formularies are needed. Every principle must take form before it can be known at all to dwellers in a world of forms. Ceremony, said Selden to those who would have abolished religious ceremonies, may be a poor glass to a generous wine, but without it the wine is lost. The liturgy of the Church of England is not narrow. Those who object to it are chiefly those who regard it as a shibboleth, and would replace it by some other. It is easy to select from it, and from other formularies, such prayers as no tolerant-minded man could object to.

But prayers, both in chapel and private, must be real; not mere forms, and here another difficulty must be bravely met. The sense of the Divine Fatherhood cannot be trained without this, and it is here that Roman Catholic training in England is, as a rule, so much more genuine than our own, and as the English Church foregoes the control of confession and personal direction which are there maintained, there is the more reason that the problem be faced by some other method. It is a fact that the most heroic hearts have found moral growth inseparable from prayer. Men like Gordon have confessed it the mainstay of their lives in the ordinary work-a-day world. The question of the efficacy of prayer, round which centres so much dispute between those who maintain the power of prayer and those who declare the inviolability of law, does not seem insoluble if we will but grasp the nettle firmly and look at the question without prejudice either way.

A child's difficulties are almost all subjective and internal, all external conditions are provided for it; the struggle for existence, which makes later life often so hard and rectitude so difficult, does not touch it. Whatever be the transcendental possibilities of prayer, it is certainly in this subjective realm of mind that it can normally act. While, therefore, we may still consider it unnecessary to inform the Supreme Wisdom and the Everlasting Love of our temporal and often selfish desires, there is every ground for consciously and openly expressing our trust in the encompassing and upholding Father who gives that Spirit of Wisdom whose special field is the realm of mind, and whose normal action in man is to quicken intellect into morality. Whatever may be the limits of prayer, it is here that its chief sphere is to be sought, in so far as it means petition at all. A child may well pray to its Father for all that it will, temporalities included—only let the guardian warn it when occasion arises against praying as a substitute for, instead of an aid to, willing; against prayers which defy the known natural laws under which the general advance is made possible; and especially against prayers which in the remotest degree tend to the injury of others.

8. All perception and all knowledge is useless without the motor quality of character, the power of firmly willing. Even correct judgment and wise resolve is useless without resolute action, and it cannot be too often remembered that till put into action, no virtue exists at all. As with every other faculty, power comes by exercise and by nutrition, which here means the habit of carrying through whatever is taken in hand. Let everything begun be pursued to a definite end. Consider what is worth doing and what can be done under existing circumstances, and if the decision is come to that it will be well to set about it, carry it through to the bitter end. This training begins in the nursery. It is in every way undesirable that the child should have any gifts or make any purchases which are not put to definite use. The

habit of so many children of wealthy parents, who buy some article, use it once or twice, and then cast it aside, is far worse than it appears. To suffer this is to encourage wastefulness, the habit of thinking lightly of the work of others, and, most of all, instability of purpose. There is no royal road to strength of will, it is only to be won by constant endeavour, by perseverance exercised in every daily act. The wise parent will encourage the habit of anticipating difficulties and drawbacks, and will often advise against what the child is disposed to undertake in a fit of enthusiasm; but once a pursuit has been started, though it be but the keeping of pet rabbits, will insist on its being done thoroughly.

Unhandiness has been already noticed as a form of lack of the habit of self-help, and this is a moral question. The remedy is knowledge of the properties of materials, some skill in the use of tools and perseverance in using them: knowledge, skill, and fixity of purpose, which only come from actual handling and doing. Then there is the physical self-help in which even adults are so lamentably deficient. We ignore the simple causes of health which, did we observe them, would keep us as well as our constitutions allow, and fly to drugs to cure the ills whose causes are still in full operation. Consider "catching cold." This is an irritation of the mucous membrane due to a check in the cleansing of the blood by the free exhalation through the skin. It is a mild form of blood poisoning, and does not depend on the actual temperature to which the body has been exposed, but at most on sudden change of temperature; still less can some internal organ, protected by clothes and by the outer integument, be "chilled," in the proper sense of the word. Sitting in wet things is bad, because a very large amount of energy (in the form of heat) is required to convert water into vapour even at the same temperature, and this can only come from the body, which is exhausted and chilled thereby; and much the same reasoning applies to draughts and sitting or standing in cold winds—they check the insensible perspiration and exhalation of the skin. Knowledge of this fact is acquired by experience; but what we do not ourselves know, or have very lately learned, we expect children to know intuitively. A short time since I found myself saying to a boy: "*Of course* you should know that you will get cold if you get heated and then stand about in the wind," whereas there was no "of course" in the matter: boys simply do not know, and are not more inclined to look for causes in advance of experience than their elders.*

Much lack of self-help in these matters comes from ignorance of what should be done and how to do it, rather than from want of will, though the connection between power of willing and self-help is so close that this digression, if it be a digression, seems excusable.

But if physical indolence is not a very frequent fault with children, the same cannot be said of mental indolence. Here also the habit of self-help is bred by a sound method of reasoning and by discipline. It is the custom of solving children's difficulties for them—instead of leading them to solve them for themselves by showing the way—that is responsible for much of this apathy. I remember well, as a boy, how an appeal to the master would at once secure the solution of the problem or the meaning of the obscure word, and I still observe that few teachers seem able to perceive any third course between telling a boy to try more and ask less, and giving him what he asks for, gratis. Exercises are corrected by the master with much expenditure of scholarship, time, and trouble, and never looked at by the boy, to whom they have served their purpose of gaining or losing so many marks in class. As far as his interest goes they are done with. This is not the way to encourage self-help or to get knowledge. Every difficulty we really solve at all is solved by ourselves. To do translation or sums for a boy is to encourage the very habit we wish to avoid—reliance on another to do his work for him. The right way (I dare pronounce, because I have seen it proved) is this:—When a mathematical or scientific difficulty, involving a conclusion of the reason, occurs to an average child, to put it to the class. If they do not share it, make them explain the solution; if they do, make them reason it out from suitable premises chosen by the teacher, first in two or three particular instances, then as a general law. If the difficulty is historical or linguistic, elicit from them similar events or allied words,—draw an inference and lead them to the true solution by analogical or derivative methods. Books, when used at all, should be used from the first as means, instruments, not as ends; for the imagery of true ideas about actualities, not in order to learn what is in the books themselves. For instance: A class is using *Cæsar de Bell: Gall:* Let the book be used (1) to realize the scenes described, (2) to understand Roman and Gallic methods of thought and action, (3) to get an idea of Cæsar's work and personality; and all this in a Latin medium, the constant explanation of words to be always subordinate to meaning,—and the language will stick because the ideas stick, and are fixed by vivid visualization. A war map and coloured pins will help the very grammar by making tense graphic. Once books come to be regarded as mere helps to idea, the moral work is half done, for the habit of using them is formed. Skill in their use will come in due time, and with the sense of power will come delight in its exercise, and the habit of attention to the task in hand which hardens into resolution.

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* Nor are suitable arrangements made. Every school should have its drying room, with pegs for each child's things on cross racks. This room need not be heated, a current of air driven through it by a small fan, such as is now used in all factories where there is drying to be done, will keep clothes dry in almost all weathers. The boys or girls should change into flannels for all games, and out of them as soon as they are over; there would then be no reason to be as much governed by the weather as we now are, and many ailments which are due to sitting in clothes moist from perspiration, though not considered wet, would be avoided.

All this, it may be objected, is a matter of method, and deals with mental training. But resolution is not matter of mental training so much as a moral characteristic. Again I would urge that moral training is involved in the way in which every single act of a life is ordered; and just as physical training has the closest possible connection with the mind that uses the senses, so mental training has often the most direct reference to morality. It is not until every act of a life is imbued with moral purpose, with gracefulness, truthfulness, and governed by the sense that it is done unto God and not unto men, that real morality is reached.

CHAPTER V

METHOD

"The human mind receives nothing that does not suit it."—GOETHE.

1. "Method" in education is a word used in two quite different senses; sometimes it is used to connote the science of education, at others the art of teaching. The former deals with the selection of such interests and occupations for the child as will carry out the general educational aim; the choice, that is, of intellectual studies and manual employments, the allotment of time to these in accordance with their relative importance, with discipline generally, and with the succession in which the subject matter chosen shall be presented to the growing child. Certain parts of this science of education will be discussed in the chapter on the Concentration, or, as it is sometimes called, the co-ordination, of subjects of instruction.

The art of teaching, on the other hand, deals more especially with the method by which each lesson is brought home to the child; and with the choice, from the vast masses of available material, of the particular portions which are best fitted to convey the kind of knowledge which it is desired to impress, whether general information, such as implied in the term "liberal education," or advanced technical knowledge. It is in this latter sense that the word "method" is here used.

That the best chosen curriculum will fail of its object if the method of instruction is bad, is obvious, and that no method can supersede the personality of the teacher is scarcely less so. Indeed, so much is the latter truth felt, that it is often said that the good teacher makes his own method. It is incontestable that the best method in the hands of a bad teacher will give inferior results to a bad method in the hands of a skilful teacher, as indeed is the case with any workman and his tools; but this is not to say that bad tools are here a matter of indifference. Moreover, a good method, used as an instrument and not as a crutch, can be shown to have a *raison d'être* in human nature. The inferior teacher can perfect himself thereby, and can realize that here, as in other branches of science, a system is but the orderly expressed results of discovery. The basis, both of the science of education and of the art of teaching, is the law of the child's mental growth: the former reveals that law, the latter is the procedure founded upon it; there is no question of inventing an ingenious process, but of applying a natural law.

Hence it may be said that there is but one method of instruction. This is neither that of the Formalist nor of the Realist, neither of the grammarian nor the lecturer, neither of Pestalozzi, Froebel, Rousseau, Milton, Locke, Herbert Spencer, or Herbart, nor of any other great man who has devoted his energies to the problem on which, more than any other, depends a nation's well-being—when those who now play around us shall themselves be the nation—the problem of education, whether as a science or as an art. But it is the method which these men have laboured to discover, to lay bare, and to make plain; the method by which percepts pass into concepts, whereby knowledge is acquired and the growing mind is placed in the conditions which most favour its still tentative working, and train it in habits of thought based upon normal and healthy processes.

These have already been traced in sufficient detail for the present purpose, which is, not to convince any person who has not studied psychology, but to recall the broad general teachings of that science which apply more especially to the subject in hand.

When dealing with Nature studies, thought is first concerned with phenomena, which are the visible results of principles in action. The concept is the correct apprehension of the phenomenon in question, the close observation of what really takes place, followed by the recognition of its immediately proximate cause. The mental stages are: Attention, Percept, Concept, and accurate description or Formulation; the corresponding teaching steps being Preparation, Presentation, Association, and Formulation; and in proportion as this natural order is followed will the process of assimilation be easy and successful. The "lesson" must be given in such a way as to move this process to activity—it should fit the mind like a key fits a lock. When the elementary phenomena realized by many simple concepts have been grasped, the next discovery must be of the law underlying a group of phenomena, those generalizations in fact, which, when colligated, are called a science. The stages of mental process here are again (1) Attention; (2) that note of the order and succession of percept which is called Observation; (3) the process of association of all the percepts and abstraction of the essential from the accidental, which is called Generalization, or the formation of a concept; and (4) the Formulation of that concept in correct language. The process is essentially the same as the former one, but the percepts are compound, not simple.

With humanistic branches of instruction the process is slightly different in detail, because the end to be attained is not a generalization, like a natural law, but a distinct image, simple or compound, of events, persons, scenery, circumstances, and such like. Formulation is apt to become mechanical memorizing, and what is here desired is clean, sharp visualization. Let us trace the process by which a clear idea is formed of a historical event—say the Conquest. An adequate understanding of this will depend on clear imaginative concepts of the modes of life and characters of the fishing and agricultural Norse types known as Viking and Saxon: the growth of the Norman nation, and the relation of its dukes to their nominal suzerains: of a picture of the high civilization of Normandy, its architecture, its laws, its customs: a corresponding picture of the ruder Anglo-Saxon type; of the mode of transport and warfare; of the personality of William, and so on. All these are concepts primary to the matter in hand, which must be first gained by their proper percepts, by the visual reproduction of things seen, by pictures of "long ships," of Vikings, Norman knights and their weapons, architectural views, copies of old MSS., &c., &c., which give definite and easily remembered percepts, instead of the vague, indefinite, and easily forgotten ones conveyed by mere words. These are combined into a few generalizations, and the dramatic action is built up out of these. The process, beginning, as with the Nature study, with attention, thence goes on to form concepts, and these in their turn recollected images; and these again are combined into dramatic sequence, and make up a clear imagination of the stages of growth of a people, their customs, their laws, their literature, and their art; this imagination being built entirely out of the original concepts presented.

Each lesson which ends in a complete concept, whether simple or complex, is called a method-whole or method-unit; and this term seems preferable to the "lesson" with which it will generally, though by no means always, coincide, because the "lesson" refers to the particular hour during which it is given more than to the definite concept which may take several hours to build up. The method-unit is a stone which is to occupy a definite place in the finished edifice of complete school instruction, and is used in that sense by the masters in the art of teaching, who, by correlating educational method with psychological process, have raised it to its proper scientific level.

Method-wholes are, then, the didactic units by which the single linguistic facts, the natural laws, the historical actions, or the literary inferences, are brought home to the child. Each single method-whole will of course be chosen to fill an ordered place in the curriculum, with a view to its forming part of the mental contents which are to be utilized by later method-wholes. Some are simple, and belong to the early stages, such as the nature of the units of length —the foot and metre. Others may be simple dramatic fact, such as the episodes of the First Crusade. Others, again, adapted to older children, may be almost entirely matters of reasoning and remembrance, such as the effect of Magellan's voyage, which first absolutely demonstrated the sphericity of the earth. But whether simple or complex, mental digestion follows the same process, and to assist this the material should be given in the same stages:—PREPARATION—PRESENTATION—ASSOCIATION—FORMULATION or VISUALIZATION, followed by APPLICATION of the now complete concept to other purposes.

2. The first stage, or PREPARATION, aims at recalling the knowledge already possessed by the child, to the end that the new may be naturally linked to the old. The first part of the Preparation will be the statement of the Aim of the lesson, whether the lesson be the whole of a method-unit or not. This statement of aim serves to give the direction to thought which the lesson is to carry on. "The statement of the aim of the lesson may be (1) a sentence which simply sets forth what the work of the new method-whole or of the ensuing hour is to cover; (2) a question to which the teacher expects no answer, but which serves at once to give a certain tendency to the pupil's thoughts; (3) a problem or example which introduces some new mathematical or scientific method-whole."* In this latter case it need scarcely be remarked that the problem in question must be one which is already familiar.

* *Outlines of Pedagogics.* Rein. Trans. Van Liew.

"Directly upon the statement and repetition of the aim, the teacher calls upon his pupils to relate what they already know of the subject. Sometimes a question or two will be necessary to set them reflecting more deeply. It is far better at first to let the pupil be as independent as possible in the matter. If he is disposed to tell all he knows at once, he should not be interfered with, even if the order of his narrative is bad. If his instruction is properly directed from the moment he enters school, he will gradually acquire orderly habit in speaking. But in the preparation let him be free. In behalf of unity in the circle of thought, the teacher should always aim to work with connected series of ideas rather than with disconnected single ideas. For this reason the stickler for questioning is a dangerous being to the child's power of independent connected thought and expression. After one pupil has fully expressed himself, others may add whatever they can to the general stock; a few questions on the part of the teacher serve to cast out . . . what is foreign to the subject, and to call out more definite expression on points insufficiently reproduced. The Preparation may then be concluded by the orderly repetition of all that has been accepted; and here the teacher will do well to require the child to observe order and good expression."*

While too high a value can scarcely be set on exciting the self-activity of the class, it is well here to guard against a common error. Members of a class to which this method is applied after the usual book routine, give the most wildly stupid replies, indicating at once the great need for orderly thinking and reasonable association, and the ease with which a temper of raising idiotic side-issues and frivolous objections can be fostered, and time wasted. It must be borne in mind that the Preparation being the introduction to a method-whole (generally given as one lesson of three-quarters of an hour), should not in such cases exceed ten

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**Outlines of Pedagogics.* Rein. Transl. Van Liew.

minutes by the clock at the outside, and this time must be used, every second of it, for the matter in hand. None can be wasted in idle questions, in which an actual class, as distinguished from "the young" of the theorist, will take delight in putting, if not kept well in hand.

Observing, then, the general purpose of calling out the knowledge already possessed by the class, and remembering that this knowledge must be only such as is pertinent, it will be evident that a scientific Preparation will vary according to that knowledge and the age and previous training of the children. Nature subjects for young children will generally be simple phenomena, *e.g.*, Solubility. Preparation will be somewhat as follows:—Statement of aim: What becomes of salt in a glass of water? Hence elicit what the children already know; which will probably be found to be, that the salt disappears to sight but remains to taste, and that the weight of the solution is the sum of the weights of salt and water. What they will not know, and what it is the purpose of the method-whole to convey is:—that not more than a certain quantity can be dissolved; that some substances dissolve in water more than others, from sugar, which dissolves without limit, to marble, which does not dissolve at all; that evaporation of the water restores the substance dissolved; and that the property of dissolving is called Solubility. The preparation which leads them to realize the facts they do know is the natural introduction to the fresh information.

Nature lessons for a more advanced class will have all these elementary concepts available, and the Preparation will generally consist in recalling previous lessons which bear on the new matter. Thus, suppose that the lesson is on the resistance of a wire to the passage of the electric current. Preparation will recall the general nature of resistances of other kinds, the concept of Force as tending to cause or arrest motion, and that on current as succession of phenomena in and about a conductor, and elicit that electrical resistance is necessarily a force tending to stop "current."

In the case of a simple historical method-whole for young children, such as the Saxon Invasion, the Preparation will recall the concepts which are to be woven into dramatic story—tall, fair-haired Saxon type, the Saxon arms, the long ship, the piratical raids, the Roman precautions (the Count of the Saxon shore, an officer in charge of local defences), and the lesson on the departure of the legions of Rome.

For older children the method-whole will be much more complex, and the former concepts will now be part of the mental content of minds whose idea of history should be chiefly concerned with its meaning. As an example, take a method-whole on the effect of the Norman Conquest. Preparation will deal with the previous lessons chosen to give mind pictures of Saxon and Norman life; with that on the individualism which gave at once enterprise and indiscipline; with that on Norman discipline and warfare, on Saxon and Norman law, &c. &c.; and will thus lead naturally to the narrative of the actual consequences of the rule of a typical Norman as king of England.

At this stage, of Preparation, the teacher gives no information; he only directs, and suppresses irrelevant remarks and idle questions; the object is to elicit what the class know. If the teacher finds that previous lessons have not been assimilated, they must be repeated here: "*Festina lente*" is the word; but those who have not tried this method will be astounded when they find how very little is forgotten, and how easily instruction is retained when connected interest is aroused.

3. PRESENTATION.—This second step puts before the child the new material on which his perceptions are to be exercised, and from which, in the ensuing stage, the concept is to be built up. Here we must revert to the axiom, *Nihil in*

intellectu nisi prius in sensu ; and though there is no need, by assigning the origin of intellectual or moral *perceptions* to the physical senses, to grant more than the statement actually expresses, it is undeniable on all grounds of experience and evolution as regards concepts. Presentation of new matter must, therefore, be either to the senses, or to the imagination acting by memory of what once acted on the senses. It must, that is, be either to present or to past sense perception: there is no third way. Between these two there can be no doubt in the mind of anyone who has tried both, that the appeal to present sense is by far the most impressive: the lesson which enters by the eye as well as the ear has a double chance of making its lodgment good.

As in the case of the first step, this second one will take one of four leading forms, according as the subject matter is Natural or Humanistic, and according to the mental content of the class; for if this latter is but scanty, there is little material for the imagination to draw on, and it is useless to appeal to it. Two of these four forms are chiefly experimental, and two chiefly imaginative; but, as will be shown, it is neither possible nor advisable to draw hard and fast lines between them. They may be set down as follows: (1) Direct appeal to the senses by the thing itself, such as showing an actual foot or metre. (2) By well chosen experiment to bring out the underlying law. (3) By historical narrative or description, which may also be pictorial. (4) By the Socratic presentation, which develops ideas already existing in the mind by skilfully chosen questions towards the desired end.

The first can be used alike for elementary science teaching and for advanced literary instruction: in the former case the nature of parts of the plant; the standards of length, mass, and time; the nature of particular substances, &c., &c., are all best presented in this way. In literature teaching there should be no need to insist that it is better to read much of an author, and little about him, than to reverse the process. This is the most direct, the most impressive, and in every way the best method of presentation; so much so that it would be money well spent to have really well-stocked and well-arranged school museums and libraries instead of the absurd *olla podrida* which usually goes by these names, where they exist at all. The museum should contain, not local rarities, but selected natural objects; cotton in its various stages, from the tree to thread for spinning; other staples of trade, showing their processes; metals from the ore to the finished product; anatomical preparations of a simple kind; models of common machines, the pump, the lock, engine piston, &c., &c.; descriptions of which things appeal very little to a child, and usually leave the mind more blank than the teacher quite realises.

The second mode of presentation applies to more advanced science students, *e.g.*, such a case as that of electrical resistance before quoted. Preparation has elicited that resistance is of the nature of arresting force, that more current only means more effect in and around the conducting wire, and that the amount of this effect is measured by the tangent galvanometer, current being said to be more when the deflection is greater, and less when it is less. Experimental presentation may now be arranged as below:—

(1.) Circuit of Daniell's cell of low resistance and tangent galvanometer, and length of copper 36-gauge wire, variable from, say, zero to three feet.

> Point out that length is the only variable condition, and observe corresponding variations of current when length is varied.

(2.) Repeat with constant length, but variable diameter of wire.

(3.) As before, but using different metals as conductors; nature of wire variable, other things constant.

(4.) Repeat with temperature variable, other conditions constant.

These experiments bring out that the effect on the galvanometer (which we have agreed to regard as the measure of "current") is greater when the length decreases, is greater when the diameter increases, is less when temperature rises, and varies with different metals; and these results will be used in the next stage. This is the experimental presentation. Its value lies in the simultaneous use of the senses and the reason, which constitutes the habit of observation. It compels attention, but it has three special dangers:—firstly, that the experiments chosen should not be such as incontestably warrant the inferences to be drawn from them, being only more or less connected with those inferences; secondly, that experiments be selected as merely interesting, and thus draw off, instead of fixing, the attention on the matter in hand; and thirdly, that two or three experiments be treated as sufficient ground for a wide generalization. The first is unfortunately a very common error; many teachers habitually draw inferences that the experiments do not warrant, and thus encourage the very grave mental fault of inaccurate reasoning: the second is easily guarded against, for it follows naturally from the selection of experiment to prove one single point, and this will equally bar complicated experiments: but the third is really hard to avoid. It must be continually remembered that the experiments performed are but samples of thousands of others on which a generalization depends; and this fact must be repeated at nearly every lesson, or we may foster that terrible habit of hasty generalization from which flows nearly all the heart-burnings and sectarianism of all sorts, nearly all the rivalries and enmities, in fact, which do not spring from personal selfishness in one form or another.

The narrative or descriptive will be the usual method of presentment of historical method-wholes, and scarcely needs illustration further than the remark that all narrative is an appeal to the imagination of the hearer to picture to itself the actions narrated; and if the imagination is not already stocked with the raw material out of which these mind pictures are made, the narrative is really unimagined, and therefore is not retained. For instance, resuming the method-whole of the Saxon invasion, the presentation may begin with a map of Roman Britain, attention being directed to the roads, and their general north and south direction; to the stations of the XX. legion at Chester, the IX. legion at York, the II. legion at Caerleon; may summarize the conditions described in the "Count of the Saxon shore;" and point out how towns can be strengthened to resist a raid which cannot hold out against a siege, may refer to the Roman government allowing no soldiers but legionaries, thus putting an end to the tribal system of defence, the return of the legions to the continent, and the Saxon raids being converted into permanent settlements by reason of the fundamentally agricultural habit of the Saxon.

The developing or Socratic presentation of a method-whole consists in leading the class by skilful questions to a correct inference. It is perhaps the best in all cases where the results to be obtained are such as properly flow from known premises; but it has its limitations and its dangers. It is not well applied to history generally, where it is often the unexpected that happens, where important factors are always unknown, and where the developing method seems a juggling prophecy after the event. Its premises, when applied to history, are necessarily arbitrary, and therefore its results are felt to be artificial in some way which the child can perceive, though it cannot define. It has, moreover, two great pitfalls for the unwary teacher—one is that the development of the matter in hand should become a mere string of leading questions, repressing rather than stimulating mental activity, and the other that the teacher should lose control of the class and stray into side issues and suggested (but irrelevant) points, the lesson ending in nothing definite, and the series of such lessons in that interest in "nothing in general" which is far less useful than a sound knowledge of the most unpractical thing that was ever taught. Another danger of the developing presentation is that, in unskilful hands, it easily degenerates into sophistry, producing a vague notion that anything may be proved by logic-chopping. In fine, a review of the four methods of presentation will probably lead to the conviction that no one of them is applicable alone to any particular branch of instruction, to the exclusion of the others, or to any particular age, but that all can be usefully employed at times; that Nature subjects in their earlier stages, and literary subjects almost always, are best presented experimentally; that the narrative form is peculiarly applicable to history where it is most valuably supplemented by the blackboard and the optical lantern; while the developing method can be used with advantage in all, and should, where-ever possible, dominate the others, taking greater prominence as the school years advance, and applied as often as possible, but ALWAYS on known and stated premises. Presentation, being the body of the lesson, may usually extend to twenty minutes out of forty-five.

4. Association is the name which has been selected for the third stage in the didactic process. The material of the lesson has been presented, but it is still a mass of separate facts, of which the relations are but dimly seen. Perception has played its part, and the concept has now to be formed, that is to say, that which is common to all the particulars put before the child has to be distinguished in them; the several parts have to be associated into one whole. For this the essentials must be clearly brought out, and we must review the experiments performed, the description given, or the conclusions arrived at, as the case may be. This process of association and subsequent generalization has been named Abstraction by some writers, but the word seems open to misunderstanding, the more so that the end of a method-whole is often not a generalization, but a mind-picture. To this latter "abstraction" does not apply; the less abstract

such a picture is made the clearer it will be; "abstraction" only fits the philosophical aspect of history when the learner's acquaintance with facts is large enough for them to serve as material to be further worked up. But "association" applies to all branches of study, either by associated sequences or associated percepts.

With Nature subjects this stage will be intimately linked with that of Preparation, which should have marshalled the special previous knowledge with which the new is to be connected; the first and second stages are now linked together by a review of the ground traversed, and other notions already familiar may be used in illustration. Thus, in the case already cited of electrical resistance, the four separate experiments are now associated, the inference drawn from each, and these four inferences combined into one concept of electrical resistance. Association may also (as water-pressure has already been studied) deal with the parallel case of a pipe connecting two cisterns at different, but constant levels, and therefore having differing pressures at each end, and make the notion clearer by bringing out resemblances and differences. The last step immediately follows, namely, the generalization, to be afterwards expressed in fitting language.

These steps are very easy to follow in all method-wholes which deal with physical or natural science or mathematics, where a law or a rule is the consummation of the process, but is less easy to perceive in the case of historical ones. History, especially in its earlier stages, deals with dramatic sequences, and requires the vivid realization of these rather than generalizations, which have no place till we come to those later lessons which deduce moral or political inferences from facts already known. The end of the ordinary child's history lesson is a dramatic visualization. In it far-reaching analogies of person, place, and country should not be attempted, they only confuse; such may well be separate method-wholes, where the facts already familiar in their dramatic aspects are grouped and associated according to some moral bearing, and to illustrate a law of politics or sociology. To revert to the example of the Saxon invasion, the association will be simply a comparison of the arms and mode of warfare of Saxons and Britons; a survey of the coast, assailable at all points to an invader having the command of the sea, by reason of the constant accession of forces to the invaders, and their open retreat; the bad internal communications, few or no cross-roads; wet climate, and the custom of looking to the central authority for defence; these are the points which are the main outlines of the picture, and are to be associated in the mind of the learner.

The process is also easy to follow in the case of the more advanced historical method-whole, which pre-supposes a knowledge of the facts and deals with their inner meaning: Association will be the linking up of dramatic incidents by a central idea which shows their connection; as, for instance, the Renaissance, with the train of events which led to, and followed on, the fall of Constantinople.

A common error at this stage is to ignore the preparation and presentation, and to introduce new and remote comparisons; *e.g.*, in a lesson on Alfred and the Danish Invasion, to compare with the Saxon and Roman invasions, and even with later invasions or attempts at invasion. This leads to haziness, and distracts from the central idea. The Association is of the percepts given under stages (1) and (2) alone; the possibly valuable comparisons above alluded to are subject matter for a separate method-whole; and here it may be noted that the earlier and fact-acquiring period of history may most usefully be varied by such reflective and philosophic deviations. But if these are important enough to be given at all, they deserve separate treatment. No good is done by tacking them on to the tail of another lesson; and it must be remembered that the Association can, as a rule, only receive some ten minutes at the outside out of the three-quarter hour allotted to the lesson.

The Association in the case of history may culminate with a descriptive summary of the facts, or with the statement of an ethical, social, or political generalization; in language, with a grammatical rule, or possibly with the derivation of the connected words; in mathematics, with the rule to which the examples have led up; in natural science, with the particulars which go to make the general concept, *e.g.*, of a cell, or the classification of the concepts, the law; in physical science, with the particulars of the experiment and its result, or with the premises for the inference drawn of some law of causation; and in each of these cases it will pass without any marked transition into the last stage of the lesson.

5. This last stage is that of Formulation or Visualization. This is the natural close to Association, and its effect will be strictly proportional to its definiteness. In the Association the children will work out the generalization in their own words, directed by the questions put by the teacher. In this last they will receive his emendation of their language, and they will appreciate this according to its definiteness. The Formulation is the short, sharp stroke of the die which makes the blank metal henceforward a coin, a thing which can be put to use for the work of the world, an idea. The Formulation completes the method-whole, and renders it one of the permanent possessions of the child; it is now, whether inductive or pictorial, a completed concept.

Important as is Formulation, five minutes will generally suffice for it in the case of an advanced class; with young children it will take correspondingly longer, as their thoughts are less definite. With such it may be found that Preparation, five minutes; Presentation, fifteen minutes; Association, ten minutes; and Formulation, fifteen minutes, may give the best results. The division of time is a matter in which a good teacher is specially to be discerned.

If the previous steps have succeeded one another, not by forced transition, but by logical sequence, no difficulty will arise in the Formulation; should any be felt, it will behove the teacher to look to it whether his formulation is the natural consequence of what he has presented. Conclusions not flowing from the premises, inaccuracy, looseness of expression, discursiveness, and insistance on the unessential, are the chief dangers attending this stage. Children will sometimes seize on the mere illustration of a lesson, and disregard the lesson itself: I was once giving a method-whole on the proportion of depth of sea to the earth's diameter, and was led to mention that the Atlantic Ocean has probably endured through many geologic ages, and that the ooze now being laid down on its floor is chalk in the making. This was but one sentence, but it excited the imagination of the class to the total disregard of the lesson. Under such circumstances it may be good tactics to make a rapid flank movement and change front in the presence of the enemy, alter the presentation, and take the lesson out of the series planned, so as to profit by the lively interest; but of course this is always risky, and must not be done often. Formulation must sum up and fix all the parts of the method-whole, which ought to be presented without such digressions.

6. The stages of the method-unit have now been indicated. After it comes the transition on which all consistency of life and all real grasp depend—the passing from Saying to Doing. It is an experience which will be borne out by every student of human nature, that each truth that is to become a living thing, to form a permanent part of the mind, must be acted on. If knowledge is to be retained it must be put to use. Nowhere are the shortcomings of existing methods of education more grievously felt by the teacher, who has realized that three parts of often lamented "forgetfulness" and "lack of interest" arises from the fact that insufficient provision is made in our schools for the application of any kind of knowledge. Even when it is

compelled by the nature of the subject, and linguistic or mathematical "exercises" are performed, they are as far removed from actual life as well can be, and much is taught that is never applied at all.

Application of all knowledge should be provided for, and as far as possible in such a way that the child may take a pleasure in doing the work as well as he possibly can; in fact, as a labour of love and a work of art. This will seem utopian, but it can be done, and, what is more, it can be done easily. If the map over which the child has spent pains, the exercise, the sum paper, the drawing, is torn up as soon as "marked," it is held by the child to have served its purpose, and the idea of lessons as done merely to gain a place is fostered. The wish is not to learn, but to satisfy a more or less exacting tutor. Let each child keep its own note-book, on which the term's work is to be reviewed, and the year's progress estimated; pride in neat work will soon be taken. Let the class make their own maps, these being pasted into their own books to serve for later reference; they will soon see the advantage of clean work, that they can use themselves instead of seeing it wasted, and the economy of time is simply enormous. These note-books and maps, moreover, should be available for inspection by the parents, and by accredited examiners from the Universities. They should be filed for reference, and kept at least till the boy or girl leaves the school, when they ought to go with them to their new school, and would be asked for by any teacher who took an intelligent interest in his work.

Application of knowledge will take so many different forms that a few instances will show more than pages of description.

GEOGRAPHY.—Maps and plans are the life of such parts of this study as are pursued indoors, beginning with practical map-making of the room, and later of the house plot. All general, and not a few particular, geographical truths can be graphically delineated by maps, diagrams, and sections.

The class should make their own maps, and these should not attempt to represent many features on one sheet, otherwise the cloud of impressions banishes definiteness. Thus the end of the course on the British Isles should leave the child with a physical map of the islands, a railway map, a county map, and a products map, all his own work, and containing all the material that has been set before him; he should also have made sections across the country to show the relative heights and depressions; and even a little land surveying, enough to give a clear notion how the thing is done, is an application of both geographical and mathematical knowledge which is found very interesting and instructive.

PHYSICS AND CHEMISTRY.—Practical work is essential here. The presentation will be experimental; and if the members of the junior class are told off in turn to assist the teacher, and are now and then allowed to present a point themselves, they are prepared for actual experimental work in the second stage of the subject. In the first stage, the application of the knowledge acquired is simple manipulation and measurement, simple problems which the teaching has brought out, and the keeping of a clean note-book. The later stages will be still more largely experimental, being chiefly measurement and analysis, which can only be learned by experiment. Every truth learned as a method-whole will be applied practically, and this involves its being done by the learner and not by the teacher, wherefore let the instruments provided be rough and strong. The beautiful instruments to be used by the lecturer, which boys and girls are to look at but not to touch, while the teacher measures a resistance or takes an angle, are applications of his knowledge, but not of theirs, and his work may be scarcely more useful than the conjurer's "That's how it's done." Quantitative work, neatly recorded from the very first, is the chief means of getting the full use out of the study of physical science.

NATURAL SCIENCE.—The botanist who cannot dissect a plant, or the parts of a plant, for the microscope, will be apt to think of botany as being in books rather than in Nature. Application here is the dissection, analysis, and classification of plants in regard to the purely scientific aspect, and, still more important, the practical application of botanical knowledge in the garden, which deals with plants as living things, and studies their beauties, their habits, and their culture in their birthplace. Here again the class lessons require to be supplemented by the note-book, containing sketches, diagrams, and impressions of flowers and leaves and roots, and by the garden, where plants are known under their natural conditions.

MATHEMATICS.—There are so many possibilities of application here that it is almost needless to name them. All physical science should be more or less quantitative from the first, and maps, plans, geometrical drawing, survey, applied mechanics, are all practical means of applying arithmetical, algebraical, and geometrical truths.

HISTORY.—Application of historical knowledge is a more difficult matter than in other subjects, because we are dealing with pure ideas, and the real application of these is to the discovery or elucidation of moral principles, and to the facts of social development. But, from the child's point of view, it is an application of history to make a historical map illustrating the changes of frontiers, and the diagrams which give the relative places of men and events in time. Let the note-book be ruled in quinquennial periods, or such as correspond to the scale on which the method-wholes are planned, and let the events narrated be tabulated therein.

LITERATURE.—The form in which literature can be "applied" is simply to know it, and knowledge here ranges from acquaintance and appreciation to memorizing. Learning by heart, now too much neglected, or used for wrong purposes (such as "Euclid," which should, above all things, appeal to the reason), finds its place here in sacred and "profane" literature, if that word is to be applied to any such God-sent gift as the treasures with which genius has enriched our English tongue. There is also another application in the use of authors to illustrate periods of history, and to personify the spirit of their time.

7. An ounce of practice is worth a ton of theorizing. I therefore append the skeletons of three elementary method-wholes as examples. The language used here is not intended to be repeated to a class, but to be modified to suit their attainments.

I. Geometry (elementary).—Child knows :—The point, the line both straight and curved ; length as measured by unit length ; the square, rectangle, and other plane areas, as areas, not as figures.

Method-whole.—The circle is a plane figure bounded by one line, any point on which is equally distant from a point within the circle, called the centre.

(1.) *Preparation.*—Aim : Hitherto we have considered plane figures bounded by straight lines, we shall now look at a plane figure bounded by a curved line. The square, what is known about it, it is a plane, has four equal boundary lines, is an area, diagonals are equal, half diagonals are equal, middle of the square is at intersection of diagonals.

(2.) *Presentation.*—Take a square of paper and show that the distance from the middle of the square to the middle of a side is less than the half diagonal, points on boundary lines are not equidistant from the middle. Convert the square into an octagon, join the angles to the middle point, still all points on the boundary line are not equidistant. Convert into 16-sided figure, the same is true. But all lines drawn to angles are equal, likeness to spokes of a wheel has led to use of the word "radius." Arrange by a string that every possible radius line shall be equal; the result is a plane figure called a circle.

(3.) *Associate* these ideas—plane figure, radius, boundary line.

(4.) *Formulate* according to method-whole, now told for the first time. Note the conclusion arrived at in the geometry note-book.

(5.) Subsequent lessons will apply this principle of the circle to problems, *e.g.*, to construct an equilateral triangle on a given base, and others.

II. NATURAL SCIENCE (elementary).—Child knows that:—plants are living things, because they have organs and grow, they have parts and tissues, nature of a section, forms of the cylinder and prism.

METHOD-WHOLE.—The cell is a small sac consisting of cell-wall and fluid contents; it may be globular, cylindrical, or prismatic, long or short.

(1.) *Preparation.*—Aim: What are plants made up of? Elicit idea of a cell, prison cell, honey-comb cell, &c.; a little room with four or more walls closed in above and below, number of walls does not matter. Sections of such cells, square, six-sided, eight-sided, round, &c., a prism or a cylinder.

(2.) *Presentation.*—This cylinder must be closed in, or it is not like a cell; the ends may be flat, or domed, or pointed. Show glass tube six inches long, closed at both ends, also similar tube one inch long; elicit that if sides are as short as possible the space enclosed becomes spherical or egg-shaped. Walls not necessarily straight or even regular, nor stiff, may be flexible, may be full or empty. Any such closed space is called a cell. Cherry-stone a kind of cell, though not quite what is meant by a vegetable cell. Orange pulp show individual cells, spindle-shaped skin filled with pulp. Elicit that section will be circular or prismatic, that section of several such cells will be circles with interstices, or straight-sided figures with their sides in contact; show actual section. Show section of vegetable tissue (lantern, microscope attachment); infer shape of cells from cross section, show longitudinal section and actual cells. Elicit that skin of these is probably like bark, or wall, or skin of orange cell, or our outer skin, insensitive; hence, as plant is living, it is the contents of the cells that should be specially alive.

(3.) *Associate* ideas of small closed space, flexible walls filled with living stuff; this is a vegetable cell.

(4.) *Formulate.*—A living plant cell is a small rounded sac filled with living fluid, and thence as in method-whole.

(5.) Apply by drawing various forms of plant cell in note-book, and verifying with the microscope and lantern, and use the knowledge continuously from time to time.

III. HISTORICAL (elementary).—Child knows:—the Roman system of law and military organization so far as applicable to Britain. Roman Britain as shown by remains and roads, records, &c.

METHOD-WHOLE.—Our ancestors came over seas from Jutland and Saxony; they were tall, fair-haired men, strong and fond of home life, and also bold sailors. Most of them were farmers and fishers, but some were regular sea-robbers or pirates.

(1.) *Preparation.* — Aim: Physical character of boys differ, some are fair-haired and blue-eyed, some have dark eyes and hair. Why is this? Extreme cases—Chinaman, Negro, Red Indian—show these types with lantern slides. Elicit that they mark different races. We mostly have light hair and eyes, a northern type,—must have had fair forefathers and mothers. Who where they ?

(2.) *Presentation.*—Map of Baltic and North Sea coasts, indented, much shore line, a people of fishers and sailors ; love of home, settlements grow up in Jutland favoured by the grassy plains, contrast the fiord (show slide) with such plains, agriculture impossible in the former, natural in the latter. Growing population, bolder men take to sea roving, no religious restraint, their gods only gods of sheer strength.

The long ships (slide), descents on neighbouring coasts, slaughter and plunder, Roman England, system of defence, only raids possible, Saxon bands could not hope to oppose the legionaries. Departure of the Romans amid the laments of the Britons (Celts). Celtic system of war, the fiery cross (Scott) abolished by the Romans, who recruited regular soldiers.

Saxons now find that there is no regular force to resist them. Their agricultural habits, they see rich lands to be had by killing the owners, farms ready made, first Saxon settlements, map of these.

(3.) *Association.*—Saxons powerful at sea, Britons on land, long British resistance to the Romans, some in their fastnesses in Wales and Scotland these remain pure Celts, others Romanized, marry Gauls and Roman immigrants. Saxon arms—the battle axe and javelin, the long coast of the eastern England only defensible by preventing landing, called the command of the sea. Hence first settlements will probably be followed by more.

(4.) *Visualization.*—Dark-haired and dark-eyed Christian Britons, half Romanized by four centuries of Roman intercourse, having learnt much in the way of arts and crafts from the Romans, but not the art of war, having no ships, invaded by tall, fair sailors, who settle near the coasts and become farmers, like their fathers in Jutland and Anglia. Show map again.

(5.) *Application.*—Copy the map into historical atlas. Read, from Green, confirmatory passages. Expand the ideas and foresee next stage. The drawing of the map and the application stage will be a second lesson on the same method-whole.

These are the outlines of three method-wholes. Whether they can be given as single lessons will depend on the class and the teacher's power of direction. It may sometimes be necessary to split them, and in all cases the application stage will be separate from the four first stages which constitute the method-whole itself.

Note on the use of the Lantern.—It is cheap, slides are obtainable at 1s. each, and many can be made by the older boys or girls at a cost of 3d., and they will gladly do this. Very much more can be presented in this way than can practicably be given by maps and wall diagrams. Manipulation is rapid and easy. Darkness is not necessary: closed venetians and a screen facing away from the light meets the case. Illumination may be by coal gas and incandescent mantle, either laid on or from a gas-bag. Slides give clearer ideas than hours of explanation, and they are attended to. They represent a vast economy of time. No school which does not use them can legitimately complain of an overcrowded time-table.

CHAPTER VI

THE STAGES OF GROWTH

"Although the world in general advances, the youth must always start again from the beginning, and as an individual, traverse the epochs of the world's culture."—GOETHE.

1. As the whole theory of Evolution is based on observation and experiment, this application of it also, if correct, must be borne out by well marked natural facts in the growth of a child, and must vindicate itself by correspondence with the observable stages of development of the child's frame and of his mental and moral perceptions. These stages are easily recognizable: the child study, on which all sound educational method is based, reveals four periods, which though earlier or later in different individuals, and of course merging into one another without any sharply dividing line, are yet marked off by distinct physiological and mental changes.

The infantile stage may be taken to end in the average child at five years complete, and its climax is marked by the completion of the milk teeth; from which time it begins to pass into the next. Restless activity, varied by profound repose, is characteristic of infancy. The desire to touch, to taste, to handle, to run about, to peep and pry into all things, is incessant and irresistible, and marks the process of acquiring through the senses the primary percepts of life. This is its real education, and in this most interesting period most of the characteristics of the mental evolution of the race (such as the animistic idea, and the aptitude for myth-making) can be observed. So much is this the case that the evolutionist will probably here feel ground for inference as to the early mental stages of man, as firm as that which the history of intra-uterine life appears to give to the physiologist for a parallel inference. Memory in this infantile stage is singularly strong, perhaps because it is not blurred, as in after years, by attempts to take in every impression that falls on the organs of sense. The mother-tongue is acquired, and the mind establishes by constant practice that correlation to the sensory and motor system which is to be its link to the outer world, and afterwards the means of its influence thereon. Right and wrong have no meaning as yet except as that which gives happiness or pain to the child itself, or that which is approved or disapproved by guardians.

"The infant is constantly on the move; it quivers with little muscular jerks and thrills, undirected or misdirected nerve discharges, and during the whole of child-life this fidgetiness is the natural state. A healthy child cannot keep still for more than a very few moments. Such an effort is a task for a child . . . to be learned by degrees; and if too much stillness be demanded of a child, exhaustion and irritability is the result."

"Over-pressure at school is inevitable in our day, and will continue to be so for all classes of children who will have to work for their living; the choice has to be made for the majority of parents between the mental health for the child, and its progress amongst its fellows" (true under the existing conditions, but perhaps not necessarily so).

"We have it in our power, however, to do much towards minimising this evil by insisting on a fair alternation of physical and mental occupation in school. After school hours, at all ages up to fully 10 years, lessons should cease, no home work being taken away to worry over up to bedtime; there should be plenty of time allowed before bedtime for all trace of lesson-worry to evaporate from the brain. Before, after, and during lesson hours, there should, at all ages before 15 years, be sprinkled shorter or longer intervals of physical exercise, which should be compulsory—especially with girls, who are more apt than boys to resent active exercise."

"Below 7 years of age all work should be play; from 7 till 12, brisk play should be put in short periods between the head work; and up to 15 there should always be at least half an hour given up to active exercise, in the course of the five hours which should constitute a day's brain-work."

"This is not a treatise upon school hygiene, so . . I suppose that I ought to apologise for having so rashly entered upon the realm of intellectual work in children, but we do still worship those sad cases of pathological intellects."*

Turning to intellectual acquirements for the period of infancy and early childhood (here taken together), we have to note the two most distinctive badges of the human mind —language, and the knowledge of written characters. As to the first, observation shows that language is learned by correlating words to sense impressions, and by constant repetition. The true method of language instruction has been built up, through the study of a child's natural method of learning its mother-tongue, by M. Gouin,† and worked up by him into a system based on these observed natural facts; a system which is simply transcendently successful, as every method based on natural law must inevitably be, when contrasted with those which ignore it by presenting the grammatical reasoning about words before the words themselves.‡ Further experiment is decisive that there is little more difficulty in learning two languages than one at this age, and advantage should always be taken of this fact; one modern language being acquired in addition to the mother-tongue, in the kindergarten, a result which might be attained by the close of the sixth year without a single "lesson" of the ordinary book kind being given.

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* Dr. Gerard Smith: "*Our Growing Children.*"

† *The Art of Teaching and Studying Languages.* Gouin.

‡ Notwithstanding this, many schools still continue to neglect this most effective method, and go on gerund-grinding as if time were no object, and the acquisition of the Latin, French, or German languages were quite secondary to grammar.

The second great step in this period is the acquisition of the alphabet, that marvellous convention which has made arbitrary signs stand for sounds, and has perpetuated for all time the fleeting thoughts of man. Here again experiment shows that the basis of correct spelling in after life is laid by the use of the eye conjointly with the ear in teaching to read. The time for beginning "lessons" is marked by the desire of the child itself, which will be stimulated by the sight of those of its playmates who can read. Ten minutes twice a day will enable any child of six to read easily at the year's end. This will be ample "schooling" for this period, the greatest advance being quite other acquirement than can easily be shown.

To Froebel specially belongs the glory of revealing the great principles of sound education:—(1) that all real advance comes by self-activity, the self-impelled interest and action; (2) that this grows by exercise, the natural interests and impulses expanding to acquired interests and impulses; and (3) that the school should be a child-garden, where human plants are placed in the most favourable environment for developing these interests and impulses, physical, mental, and moral. These principles are carried out in the infant-school by recognizing (*a*) that at this time the child's games are its real interests, and consequently the chief business of its life; (*b*) that these must be relied on for furnishing the primary percepts and elementary concepts which it is the special business of this age to acquire; (*c*) that the moral factors must be brought into play, active kindliness by co-operation in all pursuits, and perseverance and industry by ensuring that all gifts shall be put to use.

INFANCY proper may be taken to end at the fourth completed year, and CHILDHOOD to begin with the fifth, and to end with the close of the seventh. During this period there is no strongly marked difference between the sexes, nor do they need any marked difference of treatment. The Kindergarten will supply the training required in this period for boys and girls alike. It is to be found in most towns now, showing warm appreciation of Froebel's work, though many so-called kindergartens are such only in name. But it is not within the scope of this little work to enlarge on the application of the Froebelian system to the early years, of which there are many well qualified expositors, and I must leave this section with a regret that any "kindergartens" should exist which are merely day-nurseries for keeping the children out of the way, wherein every principle of Froebel's is as consistently ignored as is the nature of mental growth, and repression masquerading as discipline takes the place of the wise direction of the interests and activities of the children.

A child who has had the advantage of a genuine Froebelian education will have been developed physically both in general health and in that correspondence between brain and muscle which is the foundation for skill. He will have acquired the invaluable faculty of observing likenesses and differences between the objects presented to him, and thus have learned how to learn and to what to direct his attention. A colloquial knowledge of French, reading, writing, and that habit of dealing with concrete numbers and magnitudes, which is the only sound foundation for the abstract numeration called Arithmetic, will also have been gained. Discipline of the will, habits of good temper, of lively co-operation with others, and of systematic obedience, which are the real foundation for the true religious life—this moral training is given in the genuine Froebelian Kindergarten to an extent which will hardly be believed by those who have never seen, still less had the pleasure of teaching, children so trained.

2. Childhood proper passes at a time which may be taken at about the eighth year into BOYHOOD or GIRLHOOD.

During this time the milk teeth drop and are replaced, and other bodily changes, not obscure to the student of physiology, mark the setting in of the sharp distinction which is to characterize the sexes through life, dividing the active (katabolic—energy-expending), from the passive (anabolic—energy-storing), sex; the inductively reasoning man from the deductively reasoning woman. Growth in this period is most markedly in height, which increases more rapidly than chest-girth and weight. This stage may be taken as covered by the eighth to the thirteenth years completed, and its close marked by the completion of the second dentition. Bodily activity is still strong, but the restlessness of childhood has disappeared; the boy or girl will remain busy for hours over some favourite pursuit, and will play out a game to its natural end without either the fickleness or the perseverance to satiety of the child. This period may be subdivided into two—the 8th, 9th, and 10th years, wherein the persistence of the more childish characteristics is still strong; and the 11th, 12th, and 13th, wherein these weaken and fade away before the growing impulses which are to take their place.

The problem now is how to carry on the instruction of the kindergarten, and this problem is exceedingly complex; for we have to consider not only the ideal education which pure theory may demand, but also to look at the problem from the practical aspect which insists that the child shall be trained so as to be fit and able to take its place in that world of to-day, wherein success in the struggle for life is a necessary preliminary to usefulness. Fitness under the cosmic process must precede that 'steady opposition to the competitive principle' which is the essence of ethics, and this fitness cannot be attained by any system of training which places its subject out of harmony with the real living world of men and women. But it is not by carrying the *method* of the kindergarten into the school that this problem will be solved, but its principle—the encouragement of self-activity, the training alike of interests and impulses in a direction which will subserve an end foreseen by the educator, and feasible because it is in accord with natural laws. Similarly, it is not by a brand-new curriculum, warranted to have special effects on special "faculties," or by any other kind of mental gymnastics, that improvement is to be looked for; but in a selection which, taking account of the varied interests and activities of the boy and girl, and of the requirements of modern life, will avoid violent transitions from the usual training, seeking rather to vivify it by creating real interest in it.

During the first of the two sub-periods indicated we have to consider how the interests and impulses shall be directed, by means of the branches of instruction and the occupations chosen, and also how the method of instruction is to be modified to suit the age; and it should be remembered that if our education is to be consistent, and to avoid the cruel waste of time that is involved by a new departure at any point, the teaching now given will affect the whole subsequent development, which must inevitably be built upon the foundation of concepts laid in these earlier years. It is for this reason that the greatest importance attaches to the time of childhood and early boy- or girl-hood; and it may be remarked *passim* that, in contradistinction to the usual procedure, first-rate teachers are more important in these earlier stages than in later ones, where the boy or girl requires less guidance, being more capable of originating interests.

As to the choice of branches of instruction, the natural and humanistic interests are both alive, but the former, as a rule, considerably more than the latter. The interest in things has passed from the mere things themselves to their properties, and there is a marked desire to classify. The boy or girl loves bird-nesting, will collect eggs, shells, stamps, bones, pebbles, plants, anything and everything in the instinct of analysis and classification. Humanistic interest is strong, and is shown by the keen relish for romances and fairy tales, and even biography, if suitably presented, but it is seldom long sustained, the reason being that the imagination is soon exhausted of its stock of memory-concepts, and therefore flags in its efforts. The natural interests, as well as the fact that sensory perceptions are the basis of the real ideas underlying words and of all those concrete images whereby we bring back past or imagine future action, alike indicate Nature studies as those which should dominate this period of development. The relish for Natural and Physical Science, when presented as dealing with things rather than with their names, is a proof that the principle of Froebel is really carried out by this choice. But the teacher should never lose sight of the fact that the day of developed reasoning power is not yet, and therefore there should be (1) as much as possible of experimental and observational instruction, (2) as little as possible of quasi-scientific naming and attempt at encyclopædic completeness; indeed, the fewer "scientific" terms are used the better. Science is accuracy about common things, not the use of Greek and Latin names for them. Let acquaintance be made with the phenomena themselves, using words already familiar as far as may be; let the quantitative aspect be kept foremost wherever possible, and let simple induction proceed strictly from simple premises.

If the maxim "*Compendia—dispendia*" condemns epitomes in nature subjects, it has threefold force with humanistic ones. "The attempt to give the child an epitome or general survey of each branch in his earlier years, inevitably results in feeding him on dry, uncomprehended generalities. It cuts off the possibility of cultivating careful observation and perception in the very years when the child is most receptive of the individual impressions of his environment, and when he should be laying up a store of particular facts, from which to draw careful and more mature generalizations."* Now, the preliminary concepts of history are those expressed by such words as family, clan, farmer, soldier, sailor, ship, battle, war, assembly, debate, council, king, police, court, enquiry, judge, justice, law, tax, account, bank, treasury, trader, commerce, church, clergy, bishop, archbishop, nobility, &c. &c. ; and these concepts can and must be made quite concrete and definite before the words can have real meaning. It is by knowledge, mainly imaginative, how these once differed from their existing forms that historical visualization and historical concepts are built up. But in one large public school with which I have been brought into close contact (and I have reason to believe that it is not exceptional), history is taught by pages of dry summary and tables of dates, in pestilent epitomes of larger epitomes, whence every scrap of life has been dissected and dried. These, as may be proved by analysis of the boys' ideas, give no concepts whatever, and hence it happens that boys, after spending four hours a week for five years upon them, leave school having acquired nothing but a strong distaste for what they call "history." Some, by sheer force of memory, learn some of the landmarks of the past; but of the land itself, of the men and women whose characters and lives are history of the growth of England to what it is to-day they have never had one clear visualization, and therefore have no knowledge whatever. This real knowledge can be given by two correlated means, remembering always that learning history is not the learning of some one else's Radical or Conservative conclusions about it :—(1) By literature, the early tales of a nation's life, and (2) by seeing the present forms of the court of justice, army, navy, &c., by pictorial representation, for which the optical lantern gives such wonderful facilities. These should be given, not isolated from one another, but historically, beginning with the development of early man from the Stone Age, and giving example after example of the development of the successive forms of the primary historical concepts.

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* Rein. P. 123, *Outlines of Pedagogics.*

The occupations of this period are governed by the fact that the strength is not yet sufficiently developed to make the use of tools advisable. The artistic side of the children is provided for by the occupations of music and drawing, to which modelling may be added. For the rest, gardening, swimming, games, and a small amount of school drill will be found sufficient at this age, varied by an occasional outing, somewhat on the lines of the German Schul-reise, but less formal and didactic than some of these would seem to be. Excursions to places of historical or manufacturing interest within reach are the kind of thing that is meant.

3. We come now to the sub-period covered by the 11th, 12th, and 13th years of age, which sees the complete development of the child into the boy or girl, the strengthening of the powers of reasoning, of observing, and of correlating the things observed. Acquired interests rise more and more into prominence, and the perceptions of definite ends, and consequently of what is worth doing, become clearer. It will frequently be found that the collection of eggs, stamps, or what not, which once gave so much interest, has begun to pall, and the teacher is sometimes tempted to upbraid for want of purpose. But the error, as usual, lies with his own want of perception. The boy feels that the collection cannot be even approximately complete; he has seen the things themselves scores of times, and knows their every marking; there are not enough of them to make good classes, and his interest flags. The inference is two-fold; first, that the collections would be felt to be much more complete, and therefore much more interesting, if they were combined into one (school museum); and, secondly, that the interest often vainly expended in useless ways might be concentrated on allied matters which are usually looked upon as tasks. That boys and girls should show as much alacrity in their tasks as in their play, while never for a moment obliterating the line which discipline draws between the two, will seem another utopian idea to those who have never seen this result actually carried out so as to appear almost easy, by

the selection of such instruction and occupation as meets the real needs of the particular age.

Nature studies, for the reasons already given, will dominate this sub-period also, and call for little comment beyond the remarks that the "presentation" will become more inductive, and the practical applications more frequent in this second stage. As a result, order will begin to appear to the learner in the crowd of phenomena; and the great concept of Energy, which will now be given not in its mathematical aspect, nor as a mere affection of matter, but as a real physical cause, will enable him to classify naturally the phenomena with which he is already acquainted. By the end of the thirteenth year the clear perception of laws in matter governing the succession of phenomena should be gained. The hidden unity of these laws will come later, when the Conservation of Energy and the correlation of the physical forces come into view.

At this age the beginning of manual skill is very marked. It usually takes the pernicious and somewhat unrecognizable form of "mischief," name-cutting and such like, which are simply the outcome of the desire to do something, to apply knowledge or power. Carpentry, metal work, the higher occupations of the garden, will meet the demand for occupations, in addition to the usual games and the exercises of the gymnasium; and these, in addition to the artistic side already provided for, will be found to give outlets for the energy which seeks healthy and interesting occupation. It must not be forgotten that we have now only the *beginning* of skill; we must be prepared for a surprising disparity between the desire and the ability. Boys for the first time in contact with tools are almost inconceivably clumsy and changeable, and here is the opportunity of the good teacher, directing desire to simple tools and simple tasks before attempting more complex ones.

Up to the present little has been said of the moral life of the child, because it is postulated that Religion is the temper in which all the acts of a life are done, rather than a specific set of duties: it is a habitual rather than didactic basis for morality. Creed is its formulation. There is no reason to depart here from sound system and to begin with the last step. Religious instruction has been based on the intuitive preference for the better over the worse, and in the stages of infancy and childhood the passions are so weak that the environment has a supreme influence over the desires: the skilful teacher can change a child's mood by its surroundings and by suggested idea almost at will. But we are approaching the time when internal desires, independent of the environment, will begin to appear, and in the years of later boyhood and girlhood the instruction to meet this may be made more direct, more practical. With the strengthening of impulses comes the need for self-restraint, which will be most strongly called for by the changes which the next period is to bring,—a period which too often, by reason of the false shame of parents and teachers, finds the child entirely unprepared. This period should be specially noticed under the heading of religious instruction; in the meantime it will be well to glance at what boys really take an interest in, as revealing their actual moral standpoint at this age.

Now and again, when juvenile crime almost attains the dimensions of an epidemic, attention is called to the problem of providing boys and girls with decent literature *which they will read.** We hear much of "Bad Books and Bad Boys," and forgetting that a 'bad boy' simply means one whose lower self-assertive impulses are not balanced by thought of the rights and feelings of others, we hold up our hands of horror over the "penny dreadful," lament the results of encouraging a taste for reading in "the lower classes," and the depravity of boyish nature which revels in such tales. These facts afford an interesting lesson in psychology. "Rusticus," who has had upwards of two thousand boys through his hands, and has made boy-nature a special study, has made some of his conclusions public, and these throw great light on the psychological problem. Speaking of the (endemic) habit of mind induced by bad reading, he says:—"I blame our educational system for the condition of things; I blame it in strong terms, and nobody could blame it too strongly. We are too mechanical in our methods of education, and I speak not only of Board and other public schools, but also of private schools, taking them generally. We don't use common sense enough, and we don't study our boys, their natures and their characteristics. We simply teach them their lessons as if—good heavens!—that were the be-all, the end-all of our duty to the coming generation. We teach the boy algebra, and forget him as a human being, and the penny dreadful is a mere incident in that boy's disaster. This mechanical instruction ought to be, and its influence is, in fact, a very secondary thing in the education of youth. I don't blame the teachers, I am not blaming anybody; it's the system that's wrong."

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* Prose and verse about children is often put into children's books as though by that fact it were specially interesting to children, which is true only to a very limited extent. I append a list drawn up for me by an active boy of 13:—Seven tales by Henty; The Jungle books—R. Kipling; *Tom Brown's School Days*, *Lorna Doone*, *Vice-Versâ*, *Seonee* (hunting and jungle life), three books on Natural History.

" . . . One of the great factors in the life of every boy is his yearning for colour, for achievement, for the heroic. Colour, colour, colour, there is no other word to indicate my meaning. The boy believes in heroes and heroics—it is a cardinal part of his nature, and with that you put your finger on the secret of these ills. The spirit of youth yearns for the bold, the adventurous, as we men yearned also before we grew old, and stodgy, and unromantic."

"The specific is personal influence in educating the boy, training and developing him as a human being, supplying an outlet for his craving after colour, and turning it in proper directions. Second, let us have clubs—evening clubs—where the boy's energies, his ideal—to do or die—can find exhaustion in healthy forms, . . . places where they can excel in many things; where they can live up to that love of colour which is itself a God-given thing."

Now, it may be said that the class of boys to which these remarks apply is not one which is affected by the kind of education under discussion. But the matter is not one of classes, but of psychological truth. It is true that in our public and private secondary schools, the playground affords the outlet for boyish heroisms which the street denies; but the instruction is as void of real interest; and the private reading often as sanguinary as that of any "penny blood," and teaches the lesson that might is right as disastrously. Healthy reading there is in plenty: Reid, Kingston, Henty, and many more, have spread an ample feast; let it be seen that the boys get it, and that their love of the heroic be directed to the ideal of a frank, manly, truthful life, standing up for the weaker and for Woman, whom the half-grown boy marks with such a very big W, and to contempt for uncleanness and concealment of any kind. Boys are essentially the same whether their parents live in £15 or in £150 houses, and it is as boys, not as street boys, that they need the evening reunion, where social interests, music, acting, games, recitation, and reading can be encouraged. It is as boys, with undeveloped aspirations, great possibilities, and above all with the need of learning that heroism consists in friendly rivalry to be the best that it is in them to be in the direction of their chief interests. For this they need the social atmosphere in which they can realize by act their growing intellectual power, courtesy, and manliness.

Success in moral training will depend on the extent to which the age is remembered. To insist on a clerical or saintly ideal is quite useless. That comes, if it comes at all, much later; first the blade, then the ear, then the corn; first the natural, then the spiritual; first the heroic, then the Christlike character. Forcing can only produce disgust, rejection, false association of ideas, and permanent, often irremediable, harm.

4. The 14th, 15th, and 16th years. After the early years, with their boundless facilities for forming ineffaceable habits of body and mind, none are so important as these, the years of PUBERTY. The mental changes are as well marked as the physiological. Decided mental preferences come to the front, the well-trained youth desires to follow some branches of instruction rather than others, to take up some occupations to the exclusion of those which he despises with the hearty dogmatism of his age. This healthy desire, however, is often manifest as a kind of wayward obstinacy, which should not be misread for indolence. Desire, of course, far outruns the power to perform; as in earlier years the wish to apply skill preceded the ability, so now the wish for self-direction comes before the power to realise what a complex problem self-direction is, and the helplessness which would result were it allowed. The youth seems to himself fully qualified to guide his own life, though quite ignorant of the real bearing of the studies or pursuits he favours or contemns. He must learn these bearings before he is fitted to choose between them; and there will occasionally be a conflict here which will tax severely the patience, the tact, and the resource of the teacher, whose victory will depend mainly on the degree to which he has already won the love and confidence of his pupils. A little bit of good-natured Socratic *reductio ad absurdum* of shallow dogmatisms in open school is often invaluable.

To this period belongs the great lesson of self-restraint, which is learned by the perception (not necessarily formulated) that man is a social being, and stands in indissoluble relations to his fellow-men in the family, the school, the town, the nation, in fact in all the communities of which he forms a part. The training will henceforward be chiefly humanistic, and history is therefore indicated as the leading subject of instruction; but real history, not the dry-as-dust learning of names and dates, but a growing insight into the living world of men and women, which the youth can now begin to understand. The moral law in history, the place of the heroic therein, the real representation of the deeds and aims of great men, how they always have a great purpose or principle in view, which makes their greatness, and distinguishes them from the despot who merely desires his own will; how little a civilized world can be governed on the '*Hoc volo, sic jubeo*' principle; the need for self-restraint and self-direction in obedience to the eternal law of Right in the mind of man, the lesson that this law is as inherent to mind as the physical laws to matter—these are the truths towards which every effort must be directed; and the teacher has to remember that it is not didactic repetition that will bring home this lesson, but particular illustration. The generalization from the particular will come later.

As to occupations, it is the very wealth of them that is the only difficulty. Skill has now been developed to a considerable degree; rough or delicate carpentry, the making of models for the school use in applied mechanics, physics, &c.; photography, making of lantern slides, decoration, gardening, artistic extensions of the drawing class into a sketching club, and so on, will afford a field of resource so ample, in addition to the games, rifle corps, and other manly sports which will attract the majority, and in which all should to some extent participate, that there is no need for further remarks than these—that whatever is begun must be persevered in, that too many pursuits must not be allowed, and that the desire for self-direction can be fully gratified here, and made a test of character.

Method in teaching will depend increasingly on the practical applications of what has been learnt: in physics, the time spent in the laboratory will increase at the expense of the class-room, and the "presentation" of each lesson may be increasingly inductive or "developing."

In the fifteenth and succeeding years studies may be conducted alone to a greater extent than heretofore. This will begin about the thirteenth year by guidance how to use books, for comparing the thoughts they contain rather than for "learning" what is in them, after the manner of the usual "lessons," which encourages the habit of looking on what is found in a book as absolutely true or absolutely false, pernicious assumptions which govern our mental operations long after they have been nominally renounced. This is the time for teaching how to "read" in the student's use of the word, to take the pith of a book and understand what the author wishes to prove, and his grounds of reasoning. When this art is partly acquired, historical handbooks can safely be placed before the classes, and composition, written and oral, exercises in which the boys apply unaided the knowledge they have already acquired, will become more frequent. The habit of correct written formulation in answer to suitable written questions can also be developed at this age, so that the learner shall be able not only to understand, but also to express himself on paper, and this leads to a matter which must not be shirked—the great "examination question."

Some persons oppose, detest, and decry all examinations soever, but if pressed how they would make selections among many candidates, they can (so far as my experience goes) name no plan which is not a slight modification of the existing system in the direction of their own particular preferences. The conclusion which the nation at large has come to, after trying class selection and nomination, is that open competition is practically the only fair possibility. Nothing that the schoolmaster can do will change this,—the public examinations are a great fact, which is not affected by their form. A strong tendency to relieve the more injurious over-pressure, by setting questions which aim at discovering what a candidate should reasonably know rather than puzzling him with scholastic riddles, and making the form and manner of replies as well as their technical correctness carry marks, has set in already, and it must be admitted by the greatest opponents of the examinations that they are at least intended to be tests of sound general education. Now for the present any reform must stand or fall according to its power to turn out boys better informed than they usually are; it must inevitably be largely judged by its success at the public examinations. Among other paradoxes and utopianisms, I venture to maintain that this can be done without any cram soever, and with a maximum of four-and-a-half hours' head-work a day in the earlier, and five-and-a-half in the later years. Given an average boy of eight, trained in a good kindergarten, he should, taught on a sound system, at seventeen easily beat the victim of memory teaching, crammed in his last school years even by the very best of "coaches."

The existing national circumstances, therefore, may compel a sort of sub-specialization in the years under consideration. The term specialization is properly applied to the studies which are directly serviceable to the profession the man is to follow. Such are navigation, tactics, engineering, law, divinity, &c. It is not properly applied to special attention to "subjects" selected for an examination which is devised as a test for a general liberal education. If, then, a boy has decided on the army or the public service, there should be no difficulty about providing that, in his 15th and 16th years, he should conduct his studies with that or similar special intention.

A word or two on the moral aspects of this period. From the very first the sex idea should be linked to that of growth, not of passion, and matters of sex treated with perfect simplicity and straightforwardness. This can be done, and some children will permanently accept it, for healthy children can see and understand the former, and know nothing of the latter. Later must be shown the truth that the body follows and expresses the will within to such an extent that we are to a very great extent responsible for our state of health and development. The arm of the blacksmith, the legs and chest of the runner, the eye of the artist, the ear of the musician, and all the wonderful and varied forms of bodily development involved in specialized structures, are the outward and visible results of the organizing power within. It rests with man to direct his own development: animal desires encouraged by the will actually determine growth in sexual directions, instead of to the building up of muscle and brain. Healthy boys (I purposely here omit all cases of more or less pathological heredity) desire above all things to be strong; they often feel their muscles, and take much amusing pride in their growth. If well taught, they also desire knowledge, brain-power. Once let them understand that lust makes weaklings, and a powerful desire is enlisted in the cause of cleanliness of life. The still more potent factor of truth and honesty can also be invoked, if, but only if, it has already been made a real habit by open frankness between teacher and taught.

5. We have now reached the period of YOUTH, which belongs to the University or technical college, where the lecture is largely the fit and proper method of instruction. It should be the aim of school education to bring the student up to this point, and leave him capable of self-direction, with healthy ambitions, and some idea of the means of realizing them. The succeeding years are those of special preparation for that end, whether spent at the University, the military training college, or elsewhere. The period of Youth, like those that went before it, has distinct physical characters. In it the full stature is slowly attained, the chest girth and weight increase more rapidly than the height (in contrast to the years of childhood), and the frontal processes develop in the man. In the woman equally well marked physiological changes take place.

The choice of a calling in life has now to be made, and if the work of the schoolmaster has been well done, the University or technical school will reap the benefit in students who can choose their lines of study, and use both books and lectures to their full value. This little book deals with secondary education alone, not with the technical or University training; it is not, therefore, within its province to say much on the years of real specialization. These must necessarily be in one or other of three leading directions, (1) the artistic, (2) the classical (literary), and (3) the scientific and mathematical; the professions, including commercial and manufacturing pursuits, falling naturally under one or other of these classes. The preparation for these will have been begun in the last stage, by a bias in one or other direction from the general line of a modern liberal education, aiming at general culture alone, such as it is here intended to sketch out. The deviations suggested will be carried out by minor changes in the program of studies for the later school years, time being taken from some subjects and given to others which it is specially desired to encourage, as circumstances may dictate. No hard and fast line can be drawn; it is part of the contention of this book that the best results are not attained by rigid adherence to any paper plan that can be devised, and that the method, rather than the curriculum, must be relied on to secure the result at which we aim, the capacity for wise self-direction and self-restraint, as well as a cultured mind and a healthy body, trained to skill as well as to activity.

But it should be remembered that, the longer specialization can be deferred, the greater is the opportunity for general culture; a consideration most important at the present time, when the work of the world is carried on by means of a minute subdivision of labour, designed to secure a thoroughness which must almost inevitably be gained at the expense of breadth of knowledge. It is a matter of painful experience how productive of disagreement between men (by mutual inability to understand each other's standpoint) this narrowing and deepening process becomes; it should therefore be deferred as long as is consistent with success in the career chosen. Moreover, one of the greatest benefits of a cultivated mind is to be able to find relaxation from professional life in quite other interests, especially in literary ones; and this great boon can scarcely be won unless the training is carried on to its legitimate end in the full awakening of the literary sense, an awakening which rarely takes place much before the seventeenth year: while the final argument for as wide a culture as is consistent with thoroughness, is that the specialist who narrows his interest to his own speciality will continually find himself fettered by the want of that larger knowledge which enables the part to be better understood by its relation to the whole; which puts the speciality, too apt to fill the eye, into perspective, and often furnishes analogies and parallels which bear rich fruit in new discovery.

6. It is often objected to oral methods of teaching that "the masters learn the lessons and the boys hear them." The cause of this travesty of oral teaching is easy to trace. With the honourable exception of the general body of Primary (Board) School teachers, few schoolmasters know of any method of oral teaching but the lecture. This method cannot be too absolutely condemned for junior forms. To young children a lecture is pure didactic verbiage: it awakes little interest, recalls few old percepts, gives no new ones, fosters indolence and apathy, and is at once forgotten. The same remarks apply to any method of teaching where the master does all the talking, and fancies that because he is making an effort his class is doing the same. Hence it is not surprising that oral teaching should be condemned by those who think of it as lecturing. It is also sometimes said that setting boys exercises to do, grammar to learn, their construing to prepare, &c., fosters self-help and exertion. Even if this be so, it surely cannot be seriously maintained that no other method can secure this result! The stimulus, if these things give it, is to self-activity; and this, once roused, does the work. If this self-activity can be otherwise stimulated, the result will equally be attained, and this rousing of the mental effort is the whole purpose of the method now

advocated. Moreover, at the present time, when a considerable range of intellectual acquirement is imperatively demanded, it is absolutely essential that no time be lost in each day. If there is to be no overwork, no cramming, no unhealthy competition, and yet a high standard of knowledge, the machinery of education must be the best that can be devised, that is to say, the unalterable factor of Time must be utilised to the full. Now, it is the gravest charge against the present survival of a mediæval system that it wastes a huge amount of time which was of little consequence then, but is vastly important now that competition both within and without the nation is so keen. A class, of twenty let us say, write exercises, which are corrected by the master out of hours, and in red ink to catch the eye and save time in pointing out. These exercises have been done out of class by the pupils separately, "to encourage their self-help." When the class re-assembles, ordinary practice chooses one of two alternatives. If the exercises are severally gone over with the boys and corrected, and individual mistakes being pointed out, each can hardly receive less than a minute-and-a-half of explanation, and during the thirty minutes thus taken up each several boy is idle for twenty-eight-and-a-half minutes; for learning grammar or other tasks set in this time, though it may keep boys quiet, does not, and indeed cannot, arouse any connected mental process; the boys are quite aware that, if only they be quiet, nothing more is expected. If, on the other hand, corrections are not gone over severally, but read out to the class or given to the boys, I know from experience that they are not listened to or looked at; to them the exercise has served its purpose of gaining a place or just passing muster, according as the boy is ambitious and near the top of his form, or the reverse. So with construing. Is the attention of each boy usually rivetted on the "construe" which is being done? Or on the passage which he is likely to get? And if the latter, I submit that his relief on hearing another boy "put on" does not conduce to self-activity more than did the use of the crib with which he not improbably got up the task.

"Hearing lessons" the boys have learned is not teaching, though very few schoolmasters seem to be aware of this fact. For here, again, we have a simple dilemma. Either the boys know their lesson, or they do not. If they do, would not the application of their knowledge be better than its repetition? If they do not, then assuredly by the time they are turned down they will not have acquired it. Moreover, under this system of "hearing" lessons there is a marked tendency to put the large majority of questions to the five or six boys who will answer, and not to waste the time of the class on extracting painfully the dregs of information from the "duffers," who become hopeless laggards, learning little or nothing, till they are moved up in the school from sheer shame, to repeat the same experience in the next form; a result which some parents are becoming alive to and think an insufficient return for the fees!

Mr. C. C. Cotterill, M.A., from whom I have already quoted, says (*Suggested Reforms in Public Schools*, pp. 158, 162): "As things stand at present, a boy intended for a public school education usually begins Latin not later than at ten years old. Before he has done more than master the merest elements of Latin, he begins Greek, and thus some of his time is given to another series of rudiments. The same may be said of French, which he is usually expected to begin about the same time. He is also doing arithmetic, and frequently either algebra or geometry, or both. Meanwhile he is devoting a very small portion of his time to the study of his own language, of which he has, and continues to have, so imperfect a knowledge as to interfere most disastrously with anything like a comprehensive knowledge of any other, for all his linguistic attainments are of a most elementary description. He is actually prevented, as far as the system goes, from progressing." . . . . "I cannot but believe that most schoolmasters, if they investigated the subject with open minds, would be compelled to allow the justice of the following remarks which were lately made by the head-master of a great school: 'We are on the wrong tack. There must be something wrong when the average boy leaves school, and, after devoting so many years to the study of Latin and Greek, is only able to spell his way painfully through an ordinary Latin or Greek author.' Yes; we are on the wrong tack. . . . . . I cannot forbear saying that it remains a mystery to me that the Public Schools should, year by year, allow boys to leave them, after years of what is called a 'classical' education, without any but the most flimsy knowledge of general history or general geography. Such ignorance is very rarely supplemented in after years; for the continuance and detailed work (much of which depends upon the memory) necessary as a foundation, is distasteful, and often almost impossible, to the man who is occupied with many other engrossing subjects. He therefore remains during his life in pretty much the same condition of ignorance upon these subjects as he was in when he left school."

The same remarks hold good of the entire realm of physical and natural science, wherein the special progress of our century consists; and the net result is, as a great and successful tutor has put it, that the great majority of public school-boys who never reach the sixth form, or stay in it but a very short time, leave school knowing baby-Latin and baby-Greek, and literally nothing else, compelling resort to the "crammer," who strives in one year to give them, not so much information, as that accuracy of concept and clearness of formulation which should have been by this time formed habits. To all which they who praise the bygone time reply, that geography, history, and science are now taught; and that as hours are limited, this fact prevents any being learned thoroughly; and insists that the choice is between thorough classics and general smattering, a position which will be discussed in the next chapter.

CHAPTER VII

THE CO-ORDINATION OF INSTRUCTION

"Education is a vast whole of ceaseless labour, which exacts true proportion from beginning to end; merely to avoid a few errors is of no avail." *The Science of Education.*—HERBART.

1. The overloading of the curriculum of the secondary school is so crying an evil, and its consequences of brain-fag and superficiality are so universally deplored, that it is needless to dilate upon it. The bounteous crop of knowledge of nature and of man which has been harvested confuses us by its abundance. 'Of making many books there is no end, and the many-sidedness they have caused is a weariness of the flesh' for want of a principle of mental classification: we are new-born to our intellectual surroundings, and have not yet learned to see them in perspective.

A less wealthy, but more consistent and single-eyed generation, has handed down to us the Humanities as the soundest basis for a liberal education; and these were represented to them, and by dint of custom are yet represented to us, by the Greek and Latin classics, which still hold practically undisputed sway at the universities, where they are the keys to scholarships and academic distinction. But while ancient philosophy was based on pure intuition and the unassisted Reason, and deduced its physics from metaphysical principles, the modern habit is to reverse the process, and build its metaphysics on a physical foundation, inductively inferring spiritual analogies from those co-ordinated material facts which are generically called Science. The increasing place occupied by the arts and sciences in our daily round, has compelled recognition of the claims of Science to a place in the curriculum; and, moreover, as more and more persons seem to feel that, inasmuch as it deals with proximate and not with ultimate causes and proceeds by discovery, using hypothesis only as an instrument, in it lies the best hope of finding a co-ordinating principle for the contents of that vast museum of natural, physical, anthropological, and exegetical facts which lie as yet unsorted among our intellectual possessions. The need for Science as the great means of creating the habits of observation, discrimination, and orderly thought, has already been brought out (Chapter I.), and it is needless again to insist that it is vital to our success as a manufacturing nation. It is surely a truism to say that all our people should know the natural laws which govern their special activities.

Foreign living languages are also insisted upon, more perhaps as a matter of custom than anything else; for very few boys leave school able to speak one foreign language intelligibly, or even to take a pleasure in its literature. Mathematics are justly recognised as essential. The history and literature of our own country are admittedly of the first importance; the folly of instilling the knowledge of Greek and Roman legends while we neglect the history of our own land can hardly be denied; and what between these new claims for technical skill, artistic education, music, hygienic knowledge, and a score of other things, the schoolmaster often sighs for the good old times when tuition began and ended with Greek and Latin.

If to the extended demands which public opinion will not abate, is to be added the medical proviso that the child's brain shall not be taxed for more than four to five hours a day, the tutor may well think that the problem set him is one that is impossible of solution. Each great branch of instruction, to have real educative value, must be treated in a thorough manner, and if learned thoroughly, then it must be known by its many subdivisions. History must certainly include that sound knowledge of the development of the social and political institutions of our mother country which make up the conditions in the midst of which we are called upon to live and act. This knowledge can only be given by tracing their growth, compendia of information as to the present forms of government do not give it; the growth of the nation must be followed up step by step, visualizing as we go, before an intelligent idea of its spirit and genius can be gained. Without this idea Reform becomes a matter of individual faddism, and Conservatism a senseless clinging to every abuse in spite of which we have made headway as if it were the cause of our success. Then it is clear, also, that to cut off the history of one nation from the rest of Europe is to foster that besetting sin of insularity which begins by ignoring, and ends by forgetting, that there is any other history than that of Palestine and England. English history must therefore be connected with European history, which again is almost unintelligible without the history of the great empire which bequeathed to us its military traditions, its laws, its engineering, and so much of its language, and in which our religion crystallized into shape.

And history is best interpreted by literature, for literature shows not only what the greatest minds have thought, and gives us ideas powerful and beautiful in themselves, but shows, as nothing else can, the temper of each successive age, and the truths that have dominated and moulded it.

Nature subjects include Natural and Physical Science: the former meaning the study of plants and animals, of the surface of the earth, and of all its products; and the latter dealing with the forces which have made these things: the study of chemistry, heat, electricity, magnetism, sound, light, &c. Mathematics, again, open a boundless field. Besides the primarily-necessary Arithmetic, it is imperative to teach Algebra and Geometry, and if Trigonometry, Mechanics, and Conics are omitted, the most vivid realizations of the purpose and meaning of abstract mathematical reasoning are left out. Music, to be of any value, demands steady practice, and Drawing scarcely less. At least one of the classical languages is considered the badge of a liberal education, and the value assigned to it at the Universities and the public examinations would alone compel recognition; while every language that is taught implies an acquaintance, and more than a superficial acquaintance, with its literature.

How is all this to find a place? And if not all, then on what principle are we to make our selection?

2. On the score of time it must be admitted that something must be displaced, and the argument for the elimination of some of the language teaching is irresistible. Half the difficulty arises from the demand for four languages besides the mother tongue:—Greek, Latin, French, and German. Two languages must go, unless one can be taught in the kindergarten. Nor would they, from the cultural point of view, be greatly missed. Of all knowledge language may be classed as the least valuable, except (1) as opening the treasures of otherwise inaccessible thought enshrined in a nation's literature; (2) as affording an additional means of communicating with men of other nations. The real purpose, and I venture to say the only purpose, of language, is to convey thought, past or present. To learn a language as a kind of mental gymnastic, when there are so many other things which are equally valuable as training, and vastly more valuable as acquisitions, is a cruel waste of precious time. What present ideas are only communicable through a Greek medium? Is it seriously meant that there are no ethics but those of Aristotle, and that to read Plato in the original is the only key to philosophy? One modern language should be acquired with the mother tongue, but whether this has been done or not, the language instruction of the school must be limited to two, which existing national

conditions decide shall be Latin and French, or Latin and German, except for boys whose parents distinctly decide on French and German only in view of their commercial utility. These two should be acquired thoroughly, and, all other advantages apart, there will be little doubt that such thorough knowledge would be much more valuable alike in the examination-room and in later life than the imperfect rudiments of four, painfully acquired and soon forgotten.

There remains the question of selection among the other branches of knowledge: on what principle is the selection to be made?

The answer has been already foreshadowed. So long as each great human activity be duly considered and allowed free play, so long, that is, as the natural and the humanistic, the artistic, and the manual interests and occupations are provided for, preference should be given to the objects on which these activities are exercised in the order of their value as acquisitions. Each of these great divisions must be duly represented; instruction must be given in such order and by such methods as to be suitable to the age of the learner; and the specific branches selected should be chosen with regard to their general usefulness, and with reference to the national educational system, so as not to break with the Universities and such of the public examinations as are devised as tests of sound liberal education, to the end that boys be not put out of touch with their generation.

But even after weeding the list, it is still a long one. How is all of it to be made thorough? By a definite principle: that of co-ordinating the method-wholes as well as the branches of instruction.

By "co-ordination" is here meant the interlocking of the branches of instruction so that the concepts acquired in one are used to illustrate others by a series of connected cross-references; the concepts being formed by being used again and again wherever possible. This is the co-ordination of instruction as distinct from the concentration on a particular *ideal*.

The idea of co-ordination in itself is not new. As the mind of man always works according to its proper laws, concentration, or co-ordination, in the choice of the matter of instruction, has appeared wherever there has been a concentrated intention in education. The old Greeks, for instance, devised a most perfect form of concentration, because their ideal was distinct. The intention of Greek education was that of Matthew Arnold—to produce the cultured man. The dominant fact of Greek life being that manual work of the nation was done by slaves, the ideal of Greek education was Culture, Culture, and again Culture. Their magnificent æsthetic genius, manifest in the twin growths of Art and Philosophy, almost warranted their contempt for all other nations as barbarians, and their rejection of all foreign material for the training of their youth. Greek games, Greek poetry, Greek music, Greek legends, Greek religion, exalted the national genius by imitation, rivalry, and love of praise, to the very highest pitch. "Concentration" of aim could no further go, and, like all thoroughness, it bore its fruit. This fruit was not morality—the pages of Plato himself are defiled by allusions to sensuality of the basest type; nor political purity—the very victors of Marathon hurried back to Athens lest it should be betrayed to the Persians in their brief absence; it was not kindliness—the dissensions of Greece were her ruin; nor religion, in which the rites of Aphrodite and Dionysus included actual prostitution and drunkenness; nor, again, was it a scientific civilization, for science was little but speculation, without experiment, and without application to the arts of life; but it was the utmost perfection of physical form and mental comeliness which the world has ever seen. The Greek was cultured in body and mind as none other has ever been. His unity of ideal moulded the plastic matter according to the sovereign prerogative of Mind into its own image,—a very dream of grace. Athletics of the body and athletics of the mind, and the graceful arts of music and rhetoric, were the curriculum of the Greeks. For the training of the body they looked to the military sports of the great games, boxing, shooting, and the use of the javelin, horse and foot racing, wrestling, and the exercises of the arena. The mind was fed on the literature of the mother tongue. Hesiod and Homer were the Greek Bible, especially the former. The nature myths of their ancestors and the exploits of Greek heroes were the material on which were nourished the men of the age of Pericles. In his later years, when the Greek boy had passed from the school where he studied music and the grammar of his own tongue, and learned, not by rote but by heart, the national poems, he frequented the groves wherein philosophers discoursed in the open air, each to his own little band of disciples, on geometry or mathematics, on the questions of the day, or on those high abstractions of the Beautiful, the Good, and the True, to know which have ever been and ever will be the aspiration of all that is best in man.

How, in the absence of practical work and of the firm foundation of physical experiment, this philosophizing degenerated into sophistry, may be a warning to us, but it is not now the point under consideration, which is to show that the artistic unity of the Greek education gave unity to their method. To us, whose religion has come through Judæa, whose laws through Rome, whose music through Germany and Italy, and whose art from everywhere, this kind of national concentration is impossible. The old public school education tried to reproduce the classic concentration. It aimed at tempering the mind in the Greek Hippocrene, it held up the heroes of antiquity as the ideals for modern men, and succeeded in a most remarkable degree. It is a curious side-light on our educational theories that this ideal should, in the last century, have so completely displaced the Christian spirit, to which in actual history it gave way when that spirit was a living reality in the hearts of the men who evangelized the Roman world.

E I.—CONCE

guage Instruction.

	2. Latin. 6 hours.
on ion. eer- .	1. *Matter.* The T War. Abduction of Hele 2. *Form.* Regula jugation.
jan in	1. *Matter.* The T War. 2. *Form.* Conti tion (active).
of on- .	1. *Matter.* Trojan 2. *Form.* (Passiv
ore, n.	1. *Matter.* Trojan 2. *Form.* The Irregular. Its struction.
of	1. *Matter.* Trojan Regular conjugati
eks	1. *Matter.* Trojan 2. *Form.* Irregu conjugations. Reduplicated ve
ure ers for	1. *Matter.* Trojan 2. *Form.* As abo
in	1. *Matter.* Trojan 2. *Form.* As abo

is given under the headin

But if the method of concentration of instruction towards definite ends has grown up wherever those ends were so clearly defined as to be a unity, and if one branch of instruction would always be linked to and illustrated by others whenever the teachers are animated by a common spirit, that cannot be the case for us whose ideals are diverse, and, as yet, chaotic for want of a harmonizing principle. Modern Germany and America (our two great rivals in trade) have, however, made a great stride towards a consistent co-ordination of instruction. The one, by patient study of the mental operations, has discovered, and the other with characteristic keenness, is applying, a new form of "concentration," whereby, instead of science, mathematics, history, literature, language, and manual training being treated as entirely separate "subjects," they are linked together, by handling each so as to afford illustrations to the others.

This is the Herbartian method as systematized by Rein and others; and the tables which are given in the annals of work done in the experimental school at Jena will show the kind of concentration which is there followed. The one here translated is one term's work of one of the lower forms.

A criticism of Professor Rein's elaborate system would of course, in common justice, demand a whole series of these tables for comparison, and the one here translated is not given for criticism, but merely as an example; it will be seen to be closely related to the table of p. 73, and apparently places the branches of instruction in what is considered the order of their relative importance. Though the minutiæ of detail may be scarcely suited for English boys, this does not affect the central idea.

3. The kind of co-ordination given here may be modified to one dealing rather more with the central idea and less with the form. Nor perhaps will it be considered necessary that Jewish history should strike the keynote of all human-

istic instruction. Neither are we limited to one kind of concentration; there are three convergent lines on which it may proceed—concentration of aim, which decides on the branches of instruction and occupation with reference to the ultimate ideal of education; concentration of time, which decides how the material of the week's lessons shall be allotted in different years, having regard to the stages of growth; and concentration of matter, which limits the choice of branches of instruction from each main category to such as are mutually helpful.

The concentration of aim has been already dealt with. While assigning primary importance to character, it has been put forward, I trust convincingly, that character is trained not by any didactics, but by the spirit in which all the acts of a life are done, and that character is best trained by the development of the great groups of human faculty which deal with the natural, the humanistic, the manual, and the æsthetic activities and interests. This concentration of aim is the fundamental principle—the key in which the piece is composed—and runs through the whole. Without it all systems are lifeless.

Concentration of time has also been explained inferentially in the special adaptation of some kinds of instruction and occupation to some ages. Nature studies being those most suited to the earlier years, and being the basis for all percepts, these may be called the theme of this part of our educational symphony. To this theme is assigned a much larger place (by the weekly hours) up to the age of fourteen than afterwards, when the ripening intellect and greater reasoning powers can realize the grander one of history. From fourteen onwards the central idea may be humanistic, and, selecting history as the vehicle of human facts which are to be woven into concepts of human causes, as natural facts are the material for the concepts of physical causes, this will dominate the second educational period, passing naturally into the third phase, when historical instruction takes a purely literary form. This is concentration according to the stage in the growth of the learner, by which most hours per week are given to the kind of instruction which specially fits the age.

Not that any one of these is to monopolize the period in which it is the dominant. The matter-concentration merely means that, whereas in the early years all the subjects of instruction are grouped round the nature studies, in the second period these nature studies become subordinate to the historical in the value given to them. True literature, again, may and should begin from the very earliest years, and will be well appreciated if it be but suited to them; early reading and early history may be such as are summarized by Dr. J. J. Findlay,* where the preliminary work of giving distinct concepts of the raw material of all social life has already been gone through. Such preliminary work may be given by reading Crusoe, in addition to all the actual concrete material available, and may be followed up by old English legends, characteristic of the earliest days, which may be chosen without strict regard to chronology. They would, above all, include the legends of King Arthur and the Round Table, Robin Hood, &c., and be followed by the Settlement of England, as presented in its legends (see *Freeman's Old English History*); the Anglo-Saxon Forefathers; the Danes and the Christianization of England (Egbert, Alfred, Canute, Augustine, Paullinus, Dunstan, &c.); (to which I would add Columba, Aidan, and Cuthbert)†; by the great English kings, from William the Conqueror to the end of the Wars of the Roses; by the Renaissance, the Reformation, and the Age of Discovery, ending with the development of Modern England.

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* *Outlines of Pedagogics.*—Rein, translator's notes, p. 125.

† Disconnected from events immediately preceding it in the history of British Christianity, the landing of Augustine in Kent (A.D. 597), if not actually represented as the dawn of evangelization, is certainly given an undue prominence by school historians. The facts are given in such a way as to create a quite erroneous impression with regard to the development of Christianity. The evidence seems to show Augustine to have been a priest who came to plant, not Christianity, for that had already flourished in the island, but Papal discipline. The teaching of Christ had penetrated to many a Cymric home in the mountain fastnesses of Wales before ever the fair-haired Angles had attracted the attention of the Roman deacon in

By some such course the early part of the historical course might be made as really literary as the later, and the legendary might be merged in more serious historical instruction on reaching the Anglo-Saxon Chronicle and the Norman Conquest, about the eleventh year of age, when the

the market-place. In A.D. 430, Pope Celestine had sent Palladius, and two years later St. Patrick, to work among the Scots of Ireland. Ninian and Kentigern had laboured during the V. and VI. centuries in the south and west of Scotland, and finally, in A.D. 563, thirty years before the landing of Augustine, we have the opening of the wonderful career of Columba, which was to produce effects so far-reaching in the spiritual history of Saxon England.

Unlike Palladius and Patrick, Columba of Donegal cannot be regarded as in any sense a Papal missionary. Of noble birth, and of brilliant attainments, he gave up all to labour at the conversion of the Picts on the desolate Scotch coast. Settling with twelve monks upon the little island of Iona, he established there a school of teachers and preachers, concerned not with the establishing of any ecclesiastical authority, but with the diffusion of the ethical teaching of Christ. "It was probably the progress of the Irish Columban at her very doors which roused into new life the energies of Rome, and spurred Gregory to attempt the conversion of the English in Britain." (*Green*). But the new impulse was soon exhausted, and Aidan came from Iona at the call of Oswald to take up the work which Augustine had interrupted and left unfinished. Aidan founded his episcopal see on Lindisfarne, and from this sanctuary, afterwards so well named Holy Island, missionaries poured forth over the Saxon realms. Scarcely less marvellous than legend is the history of the conflict of this handful of devoted men with the fierce passions of the Northmen. It was the teaching of Aidan and Cuthbert—the peasant preacher, born on the slopes of Lammermuir and working among the peasants of Ettrick and Teviotdale, Yarrow and Annan Water—that finds such noble utterance in the songs of Caedmon. But at the moment that it found adequate musical expression the Church of the West was doomed as an ecclesiastical polity. At the synod of Whitby, A.D. 664, Roman power of organization triumphed over Celtic sporadic enthusiasm. This was no doubt necessary, an unorganised Church could hardly fail to be drawn into the tribal squabbles, and lost in them. But the work of the missionary had been done, and done nobly, by the early Church of the West, and now "strangers who knew not Iona or Columba" could enter into the fruits of her labours.

Nature studies begin to give place in the apportioning of the weekly hours.

Co-ordination of the matter of instruction is of course a much more difficult affair than its adaptation to the age of the learner. It is carried out mainly by method in teaching, and involves the actual utilization of each branch of instruction in teaching certain others. For instance, Mensuration in Arithmetic, the understanding and use of the units of length, area, and mass, and their subdivisions and multiples are applied in Geography to map and plan making, in Physics to weighing and measuring in various ways; and the arithmetical concept is derived from actual measuring and weighing in these branches instead of from learning abstract "tables."

Geography is used to illustrate and explain History day by day, and even linguistic exercises can be made to deal with things brought out by other lessons as well as with the tangible matters of daily life, so that each word not only is linked to its definite concept, but also that the concepts chosen are enforced by their constant application and obvious usefulness in many aspects.

Some American schools, with the true instinct of their nation for the useful, have taken Geography as the central subject for their concentration, and grouped all other studies round it. If this cannot be defended for the later periods from the point of view of the Humanist, it seems admirably adapted to the earlier ones. We live on the Earth, its products nourish us; to direct its energies is the business of our lives—the fulfilling of the command to replenish and subdue; our use of its possibilities for production is the measure of our national prosperity, its seas are our highways for that federation of the Anglo-Saxon States which lies before us; and though these applications of Geography are not those for tender years, the percepts on which they rest—the knowledge which perceives facts—are for most men formed then or not at all. Moreover, sound geographical teaching (not mere names and distances) links, quite naturally, History on the one side with the Natural Sciences on the other; it is closely related to Drawing, and still more closely to Mathematics, in which Geometry should return to its old meaning of Earth-measurement (land surveying). Thus it lends itself in an unparalleled degree to the co-ordination of studies. In the same way History of the Mother Country will naturally form the centre of its group in the next period,* and the linguistic instruction will be mainly historical, sufficient progress having now been made to admit of method-wholes being given in the foreign tongue.

To carry out this program the curriculum hereto appended has been drawn up. The figures indicate lessons, generally method-wholes, for each term, allowing a 30 per cent. margin for repetition—thus 50 lessons per term of 13 weeks, at 5 lessons per week, gives an available balance of 15 lessons for repetition and examination in what has been done. The table is of course not in the least intended as an iron rule; all who have experience of school discipline will readily agree that paper programs are made to be modified. It is given as an illustration only.

4. Of nothing is it easier to speak in terms of airy generalization than of education. The entire value of every scheme depends on the way in which its generalities are translated into practice, that is, on its detail, and the co-ordination of method-wholes must necessarily be an inter-relation of individual lessons. I almost despair of showing how this is done without comparison of single lessons, which in a popular treatise would be intolerably tedious. There are, however, no two ways about it. Remembering that they are dealing with the formation of definite concepts in the minds

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* I am inclined to think that English history should be associated with Continental history from the first, to the degree that is needful in order to illuminate it and show its real meaning. I am aware that this requires much discretion to avoid confusion, but discretion is one of the badges of the good *teacher,* and cannot be dispensed with.

ON.

D.			THIRD (LITERATURE) PERIOD.								
3	14·66	15·00	15·33	15·66	16·00	16·33	16·66	17·00	17·33	17·66	18·00
	30	30									
	10	10	10	10	10	10	10	10	20	20	20
	10	10	10	10	10	10	10	10	20	20	20
	20	20	30	30	30	30	30	30	30	30	30
	20	20	20	20	20	10	10	10	10	10	10
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	10	10	30	30	30	30	30	30	30	30	30
	30	30	30	30	30	30	30	30	30	30	30
fly	*composi*	*tion.*									
)	20	20	20	20	20	30	30	30	30	30	30
)	10	10	10	10	10	10	10	10	10	10	10
)	20	20	20	20	20	20	20	20	20	20	20
))	(10)	(10)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)
)	10	10	10	10	10	10	10	10	10	10	10
)	30	30	20	20	20	20	20	20	20	20	20
))	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)
O	320	320	330	330	330	340	340	340	350	350	350

Table II. to face page 172.

class periods.

‡ In original writers, not epitomes.

of the learners, and therefore that they have to form these concepts by the actual things, and not by descriptions of them, the teachers in a school must all meet and correlate their courses of instruction, instead of proceeding on entirely separate lines. Each must know what the others are doing. The general intention must be correlated week by week, so that each teacher can use the material of the others to illustrate his own, and thus impress the children with the essential unity of all their work. This can be done by brief abstracts of the weekly method-wholes being typographed and exchanged, as well as sent to the director for reference and record.

Here a great difficulty is likely sometimes to occur, which can only be overcome by mutual goodwill. The temper of the specialist who cannot sympathise with anything outside his own speciality is fatal to co-ordination. If the teacher of science contemns literature as fanciful, and philosophy as nebulous; if the classical man sneers at science as materialistic; if the artist despises the mechanical substratum by which he himself is rendered possible—these antagonisms will inevitably be revealed to those who are taught as well as to his colleagues, and in place of mutual co-operation and mutual respect will arise oppositions and even enmity, and all real co-ordination will be at an end. We must be specialists, as a result of our limitations; but let us at least appreciate the results attained by other specialists, and not seek each to erect our own speciality into the highest place. Let each man's work be the greatest to him, but let him not forget that the same is true of his fellows, and that "it takes all sorts to make a world."

Then, again, the purpose of each series of studies must be borne in mind. That of Nature studies is Accuracy. These studies are insisted on by the common consent of our time, for the reasons so well stated by Herbert Spencer in his work on *Education*. Modern thought insists on accuracy. It deals with proximate causes, and sets these causes into reasoned order. The sciences which thus come into being supply the most valuable training possible, by compelling the intellect to recognize its premises for reasoning, and to distinguish between the real and the symbolical meanings of words. Half the disagreements of intellectual men are due to a want of knowledge how forces act to produce results, and the vagueness of speculation is reproduced in current antagonisms. There is great hope that accuracy of thought, by revealing the limits of our knowledge, will put an end to many of these antagonisms. To form habits of accurate observation in the early years is the special task of the educator, and his ultimate success is the revelation of Law in matter.

The end of History in education is the corresponding revelation of the ethical purpose of life, and Right-doing as the condition of progress, the law of morality governing Mind. This generalization is reached through a multitude of examples, and not by any assimilative process of the conclusions of others. The means is to supply the material for this generalization.

That the instances come before the generalization is often forgotten, and history is treated didactically or philosophically from the first, a great error. The attempt to force generalizations and conclusions from masses of evidence known to the teacher, but not to the learner, however just these conclusions may be, is disastrous; for the very few facts on which the generalization is based (to the learner) are unequal to the weight of the inference, the natural logic of the mind refuses to connect them, and the facts are forgotten in the effort to remember the conclusion.

From such a method may be expected to result a general vague reflection of the bias of the teacher; but even should the edifice of fictitious knowledge reared on this sandy foundation stand for a while, it is at the mercy of every gust of historical criticism. The possibility of an ordered view of history seeing the interaction of many forces, and the final justification by survival of the more over the less ethical ideas, and the ascendancy of races in the measure of their qualities, is lost; the untrustworthiness of "history" becomes a byword, and the study bears little definite fruit in the mind other than the conclusion that all is vanity. To avoid this, material for inferences, not ready-made inferences, must be given, and this material must be chosen with as strict reference to the inference to be drawn as in physical studies. The truly essential in history must be fully presented, not the unessential, and this in full consideration of the philosophy of history, always however with the proviso that at this stage this consideration is for the teacher, not for the learner.

Now, where to begin the historical course may seem very hard to decide. However far back we may go, there is always an earlier civilization still. It was once the fashion to begin with Rome. When the fifteenth century began to read Homer, it discovered that Greece was civilized when Romulus sat on the Capitoline hill, and Greek civilization then represented the beginning of things. But Buddhist monuments, Egyptian temples, Central American palaces, Babylonian inscriptions, and ruined African cities all show that, however far back we may trace civilization, there are not only earlier, but often more perfect forms in other parts of the earth. Any reflective mind familiar with the difficulties of stone quarrying, on seeing in stoneless lands Asoka's pillars (250 B.C.), beautifully rounded monoliths forty feet long, will be aware that these imply the geometrical and engineering skill of generations of specialists. And if Chephren tells us in his inscription that the Sphinx was already in need of repair, presumably from the ravages of Time, when he built the Great Pyramid; and the Babylonian monuments of 5000 B.C. tell of antiquities already hoary, where shall we set the bounds of history or begin the tale of evolving civilization?

In some remote districts of the world, on the other hand, the stone age is even yet not entirely extinct, and this fact suggests that we may consistently be allowed to regard the state of outward civilization as expressing merely the nature and aptitudes of man. Under such an aspect it would seem less important where history is begun than how it is treated. We have always with us the influence of mountain walls and desert barriers, of sea and river highways, of coast and climate; always the same human passions and impulses, the same desires, hopes, and fears, working by similar paths to similar ends. "Compile me a history of mankind," said the Eastern despot to his vizier; and the industry of the courtier brought a thousand volumes on three-score asses. "Abridge! abridge!" cried the monarch. "Your Majesty, they can be reduced to a single phrase—they were born, they suffered, they died!" Into what conditions they were born, why they suffered, how they died, can be illustrated from any pages of the record; the great thing is to supply clear cut images, whence the generalizations may be drawn in due time, and for this, fulness of detail in what is presented, not encyclopædic completeness of presentation, is required.

5. The end of all instruction must be sound knowledge of the particular matter. To subordinate natural and physical science to historical treatment would be to ruin their particular purpose, and to leave a boy at the end of his course without the special knowledge which modern life demands. Sound judgment and clear common sense are needed, that the boy be not sacrificed to a desire for educational symmetry which has no reason apart from the boy. He is not to be fitted to a system, which exists only to subserve his development; he, and he alone, is to be considered, not any scholastic ideal.

I now extract from the term-book the three first pages to show the method of correlation of subjects; the correlations of individual method-wholes will depend on the teachers, and the application of each, the impressing of truths by their constant practical use, which is the vital essence of sound teaching, yet more so.

Normal age: 8—8·33.

GEOGRAPHY, 50 lessons.—Relative sizes of things, meaning of geographical terms, unit of length, distance, scale, direction, elementary realistic geography.

BOTANY, 10 lessons.—Plants are living things, having organs; structure of root, stem, leaves and flowers.

PHYSICS, 30 lessons.—Common attributes of matter—close and porous, absorbent and non-absorbent, hard and soft, brittle and tough, rigid and elastic, &c.

ARITHMETIC, 40 lessons.—Linear and plane mensuration by the ordinary and metrical units. Addition and subtraction. Parts and multiples of the foot and metre.

GEOMETRY, 20 lessons.—The line, straight, curved, and crooked. Regular, irregular, and compound curvature.

ENGLISH COMPOSITION, 20 lessons.—Simple lessons in observation. Writing down the results of observation of a thing or the picture of a thing in short sentences. Dictation.

ENGLISH HISTORY, 30 lessons.—Weapons and relics of the Stone Age. Reading aloud literary tales and legends. No formal lessons.

LATIN, 50 lessons.—Simple Latin words and phrases, mostly oral, devised so as to bring out elementary construction of the sentence.

FRENCH or GERMAN, 40 lessons.—Simple French sentences on the Gouin plan, spoken and written.

HISTORY OF CHRISTIANITY, 13 lessons.—Simple Bible reading, suitably chosen and explained, or the gospel of the day; done on Sundays.

DRAWING, 30 lessons.—Use of the ruler, scale and compasses. Delineation of plane figures of given sizes, both with and without the instruments.

MUSIC, 60 lessons.—Vocal and instrumental.

Here the chief natural ideas are the units of length, and their parts and multiples. Geography is concerned largely with actual measurement, Arithmetic with mensuration, Geometry with the line and its properties, and Drawing with the line treated as the boundary of surfaces.

Normal age: 8·33—8·66.

GEOGRAPHY, 50 lessons.—Direction by the sun and shadows. Maps and plans. Map making. Height: its measurement and representation.

BOTANY, 10 lessons.—Forms of common roots, stems and leaves.

PHYSICS, 30 lessons.—Water: its simpler properties.

ARITHMETIC, 40 lessons.—Divisions of the foot and metre. Multiplication illustrated by areas and solids, and treated graphically. Practice in mental addition and subtraction. Practical measurement.

GEOMETRY, 20 lessons.—Meeting lines: the right-angle and its aliquot parts.

ENGLISH COMPOSITION, 20 lessons.—As before.

ENGLISH HISTORY, 30 lessons.—Weapons and relics of the Bronze and Iron Ages. Early armour. Arthurian and early Celtic legends. Reading as before.

LATIN, 50 lessons.—Simple sentences as before, spoken and written. Construction of the sentence.

FRENCH or GERMAN, 40 lessons.—Similarly treated, but more conversational.

HISTORY OF CHRISTIANITY, 13 lessons.—As before.

DRAWING, 30 lessons.—Simple rectilinear forms, parallel and perpendicular lines, with and without instruments above named.

MUSIC, 60 lessons.—Vocal and instrumental.

The unit of length is here applied in a new manner as height, and this "third dimension" is brought into Arithmetic. Geometry deals with plane figures, their sides and angles; and Drawing with plane forms, going hand in hand with Geometry.

Normal age: 8·66—9·00.

GEOGRAPHY, 50 lessons.—Anatomy of the British Isles, knowledge of the leading physical features of the country.

BOTANY, 10 lessons.—Functions of root and leaves, using the lessons previously given on water.

PHYSICS, 30 lessons.—Air, earths, and metals, preliminary to the clays, gravels, stones, ores, and other mineral products of the British Isles, to be treated in the Geography of the following term.

ARITHMETIC, 40 lessons.—Division, based on the arithmetic of weight, units, fractions and multiples, practical weighing. Practice in mental addition, subtraction and multiplication, and division.

GEOMETRY, 20 lessons.—Properties of the circle, division of the circle, magnitude of angles.

ENGLISH COMPOSITION, 20 lessons.—As before.

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DRAWING, 30 lessons.—Simple forms from the flat, patterns, even and graded shading. Geometrical solids from models. Geometrical drawing—division of the circle, and angles.

MUSIC, 60 lessons.—Vocal and instrumental.

Physics here comes into close relations with Botany by the part played by water in the growth, nourishment, and composition of plants; also with Geography by the fact that all Geographical anatomy depends on watershed.

The general principle on which these lessons are drawn up is as follows:—That having selected branches of instruction, representative of each of the great categories of human knowledge (*vide* p. 73), a course of method-wholes adapted to the number of hours granted by the allotment of time is sketched out as though this branch in question stood alone, and the sole thought of the instructor were excellence in this particular branch. This sketch is then modified by transposing and occasionally altering method-wholes to fit other branches.

It will be observed that no attempt is made to connect *all* branches of instruction. I here greatly fear pedantry and attempts to link up Physics, History, Language, and other entirely diverse branches by artificial and far-fetched ideas. The treatment calls for the greatest circumspection and balance.

CHAPTER VIII

PRACTICAL PROPOSALS

Solvitur ambulando

1. In the matters of manliness, school discipline, wise liberty, and corporate life, there is no need to praise the education given in our public schools. But that the instruction leaves much to be desired from the point of view of the average parent and his sons, will scarcely be questioned by those who have been convinced that the process of learning is one which can be analyzed and reduced to definite laws. Why it is so has been already indicated :—(1) the ideal of instruction is entirely literary ; (2) this ideal is approached without any co-ordinated method.

It can scarcely be too often repeated that success in the work-a-day world (and success here means existence) has come to depend more and more on "directive skill"—power to direct the forces of inanimate Nature and of less able men, whether in units, classes, or races. This is the first condition of industrial and colonial success. While the social atmosphere of our public schools conduces greatly to this success, it is scarcely too much to say that the instruction detracts from it. The academical and scholarly distinctions which are its supreme result, must, in the nature of things, always be the reward of a minority ; and the majority, who either do not compete for University prizes or who fail in attaining them, are not equipped with that directive ability which comes from knowledge of the real forces of the world. Year by year a large number of the young men who should form the stalwart rank and file of England in the industrial war of production with other nations, possessing scholarly knowledge only, drift into the byways of life—small tutorships and secretaryships; or emigrate, to find their talents quite at a discount in the active colonial life; or hang on their friends, hopeless, disappointed, and listless, or finally "go under" altogether.

Another point. Instruction aiming at this "directive power" is largely given in the State-aided technical and secondary schools for the masses, and must be still more widely given in the near future. It is far superior, both in planned order and method, to that of the expensive class-schools usually called secondary. The apparatus provided in the former is for the most part effective, and enormously in excess of the usual beggarly outfit of private schools; it is well chosen, and put to its proper use, being handled by the pupils themselves, and not merely used for demonstrations by a lecturer.

I have found my own son, a healthy intelligent boy, who has always been high in his form at a public school, completely distanced by a Board School boy only a year older than himself in every branch of knowledge except Latin. That this is not unusual I infer from the opinion of an examiner to some of our largest public schools that, in the sciences, including mathematics, their lower forms are not nearly so well instructed as are boys of the same age who attend the better class of Board Schools. An inspection of such a school as the Battersea Polytechnic and Day School not only confirms this opinion, but raises the apprehension that, outside the special ground of Latin and Greek, the relative distance between the mental acquirements of the boys at the respective schools is not only being lessened, but stands in no small danger of being reversed. It is, of course, of little importance to the nation by whom its work be done, so that it is done; but it is of great importance to commercial men, who may shortly see their sons competing unsuccessfully against boys from the technical schools.

Evidence that a vague consciousness of this fact pervades the country is to be found in the clubs, unions, and guilds, which aim at bringing parents into contact with improved methods of education; but though parents are widely conscious of a need, they do not, and, as education is a special science, they cannot, say exactly what they want. That considerable changes are widely desired, there can be little doubt; though it is difficult to estimate the exact amount and direction of the changes which would command an equally wide assent. Schoolmasters have not as yet shown much disposition either to gauge or to meet the demand; and indeed most that I have met deny its existence, and ignore the whole literature of educational reform which testifies thereto. In all other professions it is considered disgraceful to be ignorant of the writings of their modern authorities, but the number of schoolmasters who are conversant with the works of modern educationalists seems to be very small indeed; and the result is, that while the air resounds with battle cries and shibboleths of party strife, the positive principles of all education, whether physical, mental, or moral, are very little heeded.

The instruction now given is felt to have so little relation to the actualities of life, that some fathers, who do not need to send their sons up for examination, are actually indifferent to their progress "at their books," and the boys very readily take the idea that Latin or Greek grammar will not help them on in life, and act accordingly. Masters, conscious that it is useless to expect to make scholars out of such materials, turn to the more real interest of the games, and insist, quite rightly, on the merits of the Public School discipline. For this large majority of boys who are not literary there is confessedly no actuality about the instruction, and they end their schooldays without ever having been trained to think connectedly, or to do one single thing in a methodical and accurate way. Is this necessary? Is it wise? Is it even excusable? Why should instruction, whether literary or technical, be given in a form "removed by an almost infinite distance from daily living interests."

The matter is one that is vital to us all; the next generation, to whom it will very shortly fall to uphold the traditions of England, those who in another thirty years will be the nation, are even now growing up. If they are to be well equipped for their work in the modern world, we must try to solve the problem more speedily than by letting things take their course, and waiting for the greater efficiency of State secondary schools to declare itself, and compel our class schools to level up their methods. It is, however, vain to expect the great public schools to initiate a reform of this kind. Institutions are governed less by the men who stand at their heads than by their traditions; they cannot balance their books, liquidate their liabilities, and start afresh. Compulsory registration of teachers, and the recognition that teaching is at once a science and an art, will be of very great ultimate value; but as every graduate of the universities will certainly be eligible as such, and as these cannot originate any system better than that under which they have grown up, and as a rule are somewhat contemptuous of all others, it promises to be long before there is a real reform of methods; and "while the grass grows the steed starves." When a sound method is rooted in the country, and its good results too manifest to gainsay, public opinion will no doubt bring about the changes which correlated instruction involves, but meanwhile an example is required. The problem must be solved by action, not by writing about it, and it seems that parents must combine to get the thing they want if they are really in earnest.

2. Feeling profoundly convinced of this, I venture to put

forward a practical scheme which I am prepared to take a share in carrying out. It presupposes sixty parents or others willing to combine to found a high class boys' school, whose curriculum and method will carry out the principles summarized in the foregoing pages from great authorities on the educational problem. The boys must be young to give the system a fair chance, to ensure a full use of the early years, not for cramming with knowledge, but for laying the foundation of percepts and the habits of observation and accuracy, the absence of which is the reason why so much valuable instruction is wasted in later years. It is therefore proposed to begin with the kindergarten, as it should be conducted, laying special stress on the colloquial acquisition of French before the age of eight. Children for whom this time is past would of course be admitted to the school, which would start with the junior classes, but preference would always be given to juniors in regulating admissions, and these would ultimately be limited to juniors admitted once a year only, thus avoiding the missing of any part of the instruction, which in a school where each term's work is strictly based on that which preceded it would be a serious matter. In order to avoid the need for accepting boys at all ages for reasons of income, to start with sufficient numbers for good games and homogeneous classes, and to furnish those classes with proper apparatus, it is essential to raise capital. This can be done not only without expense to parents, but at a positive saving on the ordinary school fees, notwithstanding the increase to the salaries of assistant teachers, which must be given if these are to be, as they should be, the very best to be obtained. It is agreed on all hands that the present scale of pay is insufficient to attract and retain men of high qualifications without the hope of boarding-houses, where large fees are charged, not for tuition, but for accommodation; and in the teaching profession, like all others, it is useless to expect to get first-rate talent for third-rate pay. Indeed in no other profession is it so essential that the mind should be free from anxieties for the morrow, that it may devote itself to the one thing only, for in no other is the visible result so remote. It is therefore proposed (1) that the scale of emolument for assistant teachers be liberal ; (2) that only teachers of the highest qualifications be engaged ; (3) that an inducement to remain and to perfect their methods shall be offered in the shape of a superannuation and bonus fund, and facilities for holiday travel to places in England and abroad where the scientific theory of education is studied and practised ; and (4) that when the school shall be fully developed, facilities shall be offered for the training of students of the science and art of education.

Further, no class of more than 15 boys can be well taught by oral methods till they are used to them, and even then no class should exceed 20 to secure the best results. Large classes involve want of attention to some, often to most, of their members. To provide one teacher to each fifteen boys may seem a large proportion, but I venture to assert that it is not too large.

The leading principles of such a school as it is proposed to organise may be summarized as follows :—

That all instruction and occupation shall be interlocked and co-ordinated ; that the learners shall be as far as practicable brought into contact with the things about which they learn, rather than with descriptions of these things, and that the influence of the surroundings rather than mere instruction be looked to for mental and moral development.

That relief from over-pressure shall be obtained by limiting brain work for juniors to a weekly average of four-and-a-half hours, and for seniors to five-and-a-half hours, per day.

That economy of time be secured by employing only the very best educational methods, apparatus, and teachers.

That the English language and literature be made a staple of instruction on the humanist side.

That the practical and manual side of education be developed side by side with the intellectual and social, not with the view of turning out amateur mechanics, but to ensure that all knowledge is put to use, and that skill and handiness be acquired.

That at least one modern language be taught conversationally and thoroughly.

That music be restored to a regular place in the school course.

That personal attention be ensured by reducing the size of the classes, so that all that is taught shall be taught thoroughly to all, up to the full measure of their capacity.

3. To secure these ends it is proposed :—

(1.) That an Association be formed, not exceeding sixty participating members, who shall each subscribe not less than £200 towards a capital fund of £12,000, to be used for the purpose of founding a school for boys not exceeding 250 in number, and of subsidizing one or more Kindergartens ; this capital sum to be redeemable by sinking fund, subject to Clause 16 of this memorandum ; and that the Association be represented by an executive committee.

(2.) That participating members of the Association shall have the right to send their sons to the school at three-quarter fees, whether the sum subscribed shall have been paid off or not.

(3.) That the usual fees shall be £80 a year for boys under twelve, £100 a year for boys over twelve.

(4.) That a director shall be appointed to the school, who shall be a trustee for the fund, until other co-trustees be appointed, with the governors of the school as these are appointed.

(5.) That the director shall be empowered to acquire or rent a suitable building and grounds, to fit up and furnish the school, to make arrangements with one or more Kindergartens under certificated Froebelian experts, which will prepare for the school in the special matter of language teaching; to engage teachers, and generally to do all that he may deem necessary to the carrying out of the plan.

(6.) That the members of the Association, acting by their executive committee, shall have power to associate two or more persons with the director as governors and co-trustees of the school, to be succeeded at regular periods of five years by others, proposed and elected by members of the Association, voting either personally or by stamped proxy, re-election being permissible.

(7.) That this board of governors shall have full powers of inspection, audit, and advisory powers over the system of education pursued at the school, and the usual powers of a public school governing body.

(8.) That these governors shall be entitled to no remuneration till the debt be paid off, and thereafter to a fee of fifty guineas in each year after the publication of the audited accounts and the report of the year, which it will be their business to draw up after inspection of the working of the school: always providing that not more than £260 a year shall be expended in this way.

(9.) That the first charge on the net income of the school, after the payment of rent, interest on mortgage, housekeeping, salaries, upkeep of house and grounds, school apparatus, and suchlike necessary expenses, shall be a sum sufficient to cover interest at four per cent. on the outstanding capital, this interest being paid to the participating members of the Association according to the amount of their shares.

(10.) That after these payments the net profit shall be divided into four equal parts, of which one shall be set aside to form a fund, No. 1, for redemption of debt, and for general and equable reduction of fees; and two parts for the formation of a Superannuation and Bonus Fund, for the benefit of assistant teachers, No. 2; and one part for a Nomination Fund, No. 3, for the special reduction of school fees in suitable cases, to be privately determined by the board of governors, or such committee as they may appoint for the purpose.

(11.) That the funds thus created shall also form a trust, vested in the board of governors, its members being *ex officio* trustees; and this board shall have power to carry out these general provisions in any way they may deem suitable, and to draw up rules for the administration of these funds, and to make such alterations in the proportions of profits allotted to each as may seem to them desirable; all such alterations being described in the annual report, and liable to revision by a majority of the members of the Association at any time within six calendar months.

(12.) That when the school is in working order, it shall always be open to inspectors from the Government or Local Board, or from the Universities, without departure from the ordinary routine.

(13.) That the director will undertake the organisation of the school, and shall receive a fixed salary of £350 a year, and apartments for himself and family, and tuition for two sons, also a capitation fee of £3 for every boy after the hundredth. His salary shall be a residual charge in the early stages of the school, after all other expenses are paid, but taking priority of interest.

(14.) That all accounts shall be kept so as to admit of regular audit by a chartered accountant, which audit shall be duly carried out once a year from the first.

(15.) That having regard to the possibilities opened out by the practical working of such a school for the extension of educational reform, should there be found persons willing to encourage the same by gift, donations may be received to an endowment fund; donors being considered members of the Association, and entitled to one vote at the election of governors in respect of each £100 given. Donors of £100 and upwards to be termed Founders of the school.

(16.) That in order to maintain the Association while extinguishing the debt, any member, on tender to him by the trustees of the amount originally subscribed, may maintain his membership in the Association by transferring £100 of the sum so paid off to any of the funds.

(17.) That any four members may call upon the executive committee to convene a general meeting of members for the passing of resolutions, which, if passed by a two-thirds majority of all the members of the Association, shall be at once binding on the executive committee.

4. This scheme has been devised to secure the following administrative conditions:—(*a*) To combine corporate management with private initiative. (*b*) To provide an education which should enable boys to compete at an advantage with those trained by ordinary methods, both at the public examinations and in professional and commercial life. (*c*) To prevent the school becoming an experimental ground for personal fancies and for the untried devices of any clique, while keeping in touch with real educational progress and methods which have competent sanction. (*d*) To retain the admirable ground plan of the great English Public Schools, which has made them a national model.

With regard to the proviso respecting the reduction of fees in selected cases, it is desired to give educational facilities to promising children whose parents cannot afford high fees, without the evils of the competitive scholarship system, whereby the veriest infants are crammed for examination, all true instruction being for that time lost to them, and without making any visible distinction between these and other pupils. This may be done by a plan of nominating children of professional men, or of others who may privately apply for such nomination, and give evidence

That the child is in all respects suitable for the school;
That they cannot afford the full fee.

The board should be empowered to accept the child at half fees, or, in extreme cases, at less, paying the difference between this and full fees to the school out of the Nomination Fund, on the same principles as a scholarship fund. Such nominations, and all communications from and to parents and guardians respecting them, to be treated as confidential.

Action, and early action, seems urgently needed; more than enough has been written and said on the subject. That all ends are brought about by the study and application of the means, is a truism so obvious, that as soon as we pass from the realm of purely material things it is all but universally neglected. Educational problems, in particular, are seldom approached with consideration of the natural forces under which growth is favoured or retarded.

National secondary education is a burning subject just now. A satisfactory answer to its problems can scarcely be expected until the principles of educational science are recognized. It is constantly asked how long the admittedly chaotic condition of English secondary education is to continue. The answer needs no oracle—it will continue until the actual forces at work in and around the child are generally understood and directed. The study of these has inspired a few teachers with enthusiasm, and their enthusiasm has leavened others. When this minority shall have been reinforced up to the point of action, indisputable success will make it a permanent majority.

A sound system of national secondary education may either precede or follow the reform of instruction in those schools where parents pay the entire cost of their children's tuition. There seems no reason in the nature of things either way; in the one case the class schools must ultimately acknowledge a proved success, in the other the State secondary schools would naturally follow the pattern set by the class schools. But the tendency of the State schools to imitate the great public schools is already so strong, that it is difficult for their teachers to keep before themselves a system of instruction based on scientific principles, while these are practically discountenanced at so many old established seats of learning; and this fact alone would be an argument in favour of beginning with the class schools.

My object is to make such a practical beginning. I lay no claim to originality for the present little book; its quotations and references speak for themselves, and show the principal sources drawn upon without further acknowledgment being necessary. To Dr. J. J. Findlay, M.A., Principal of the Training College for Teachers in Secondary Schools at the College of Preceptors, however, I wish to express a special obligation, both for personal kindness and for the advantage I have derived from his lectures, to which I owe several of the illustrations here reproduced.

I now leave the British Public to decide whether the scheme formulated expresses a demand. Should a sufficient number of persons be found to pledge themselves to become members of an Association such as has been sketched out, I shall be happy to undertake its formation.

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